THE

PRINCIPLES

OF

ARCHITECTURE,

CONTAINING THE

FUNDAMENTAL RULES OF THE ART,

IN

GEOMETRY, ARITHMETIC, & MENSURATION;

With the Application of those Rules to Practice.

THE TRUE METHOD OF

Drawing the Ichnography and Orthography of Objects,

GEOMETRICAL RULES FOR SHADOWS,

ALSO THE

FIVE ORDERS OF ARCHITECTURE;

WITH A GREAT

VARIETY OF BEAUTIFUL EXAMPLES,

SELECTED FROM THE ANTIQUE;

AND

MANY USEFUL AND ELEGANT ORNAMENTS,

WITH RULES FOR PROJECTING THEM.

By P. *NICHOLSON*, *Architect.*

This Work is illustrated with Two Hundred and Sixteen Copper-plates, engraved in a superior Manner by W. Lowry, from original Drawings by the Author

IN THREE VOLUMES.

THE SECOND EDITION, WITH ADDITIONS,

REVISED AND CORRECTED BY THE AUTHOR.

VOL. III.

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1809.

PREFACE.

I NOW submit the third and last volume of this Work to the public inspection. It treats of the Decorative parts of Architecture, and will complete that compendium of the Art with which I propose to furnish the Student.

On this subject many able authors have already written; but the plan I have followed is different from theirs. It has not been so much my object to entertain the eye by a multitude of descriptive Drawings,

 as

as to enable the learner to understand and imitate those he meets with. This purpose I have thought would be most effectually answered, by first explaining those mathematical principles, to which all chaste ornament owes its beauty and permanence; and then showing the exemplification of them in those specimens of ancient magnificence, which have escaped the ravages of time.

Indeed, this is one of the most important services which books can render a Student. Without a careful attention to it, he will be in danger of indulging his taste at the expence of his judgment; and of giving scope to his imagination, when he should lay it under restraint. For as his first ideas must be taken from the works of those who have gone before him, he must be careful thoroughly to understand them. His taste will then be employed to advantage,

vantage, and he will go forward, not only with ease, but with safety.

I have therefore first laid down rules for drawing the different species of ornament, and illustrated them by Greek and Roman examples; I have then explained a great variety of specimens of the Orders of Architecture, taken from the buildings both of ancient Greece and Rome, in order to compare them with each other, and to point out the original form. For it is certainly an error to call an Order Doric, Ionic, or Corinthian, if it does not agree in character with that originally executed in Doria, Ionia, and Corinth.

Of all the Orders, none have been so much abused as the Doric. Its members have been so disguised, and its proportions so changed, that it seems now to retain but a very small portion of its original character. Most authors who have treated

treated of this Order, have drawn their precepts from Vitruvius and the Roman antiquities—but since the Doric, as well as the Ionic and Corinthian, is of Grecian invention, it is absurd to seek for its restoration among the Roman edifices, which were only imitations of the Grecian.

Greece indeed has been long in the possession of barbarians, which, till of late, has occasioned it to be greatly neglected, few people caring to risk their lives among them. At length, however, Monsieur Le Roy, a traveller of great assiduity and repute, took the trouble to make drawings from the remaining antiquities of that ancient repository of arts and learning: and the world have since been still more indebted to the united labours of Stuart and Revett, for those accurate representations with which they have elucidated this subject.

Grecian Architecture being thus happily recovered from the ruins in which it was concealed, it is found far preferable to the Roman, both in the beauty of its designs, and the elegance and proportion of their parts. The numerous members of the latter render their profiles trifling and confused; their overloaded cornices make them clumsy and inelegant; the column of the Roman Doric resembles a wooden post, rather than a strong and durable marble or stone column, capable of supporting its entablature: while the boldness of the Grecian commands the attention of the spectator; the grandeur of its parts, and the graceful curvature of its mouldings, producing the most happy variety of light and shade upon its surfaces.

I have therefore taken much pains to ascertain the true form and character, both of the Doric and Ionic Orders, from the remains of Grecian antiquity. As to the Corinthian

Corinthian, which is also of the same origin, there are but few examples remaining in Greece, the principal of which are the Stoa, the Arch of Adrian, and that most beautiful specimen, the monument of Lysicrates: But, except in the taste of the foliage, and the form of the mouldings, there is no material difference between the character of these, and the examples of this order at Rome, of which several are exceedingly elegant; particularly the Pantheon, and the three columns in the Campo Vaccino*.

I have said but little concerning the Tuscan and Composite Orders, which are both of Italian origin. As to the former, it could only be described on the authority of Vitruvius,

* The lovers of the Art are now indulged with the publication of some valuable etchings of the most celebrated remains of ancient ornamental Architecture at Rome, from the accurate and beautiful drawings of Mr. Charles Heathcote Tatham.

truvius, the ancient remains of it being only the columns of Trajan, and Antoninus, and one at Constantinople, which are all very imperfect, as they want their entablatures. The designs of this Order, given by Palladio, Vignola, Scamozzi, and other modern writers, bear little or no resemblance to that originally invented by the inhabitants of Tuscany. Of the Composite Order, there are many examples at Rome; but as this is evidently borrowed from the Greek Orders, it will be fully understood from what is said respecting them.

Particular care has been taken in all the engravings in this volume, that the shadows should be projected by rule. It is greatly owing to the inattention of most authors, to this particular, that the impression produced on the mind of a spectator by viewing the object itself, is so different from

that which he receives from a drawing, or a print. If the representation of the shadow be not accurate, the representation of the object is not accurate; and unless this be carefully regarded, the judgment of the student will be perpetually misled, and he will be unable to make those comparisons between different figures, in which it is of the highest importance he should habitually exercise himself.

Many authors have endeavoured to establish certain proportions for columns. This I have not attempted; because I am confident no rules can be given, which will not be liable to many exceptions.

It will readily be perceived by Persons acquainted with publications of this nature, that the plan of this work is different from any other that has hitherto appeared. I have spared no pains in this Second

Edition,

Edition, to make every example perfect, having carefully revised and corrected the whole Work; and I entertain the most pleasing hope, that I shall not be found to disappoint the expectation of the Public, in professing to submit to them the most fundamental, and at the same time, the most simple and practical work, that has hitherto appeared on THE PRINCIPLES OF ARCHITECTURE.

P. NICHOLSON.

October 6, 1808.

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ORNAMENTS.

DEFINITIONS.

1. AN artificial arrangement or disposition of leaves, is called foliage.

2. The sub-divisions of single leaves are called raffles. The leaves which are chiefly used in architecture, are the acanthus, olive, parsley, laurel, and lotus.

3. An artificial arrangement of leaves, branches, fruit, flowers, drapery, &c. either singly or combined in any manner with each other, are called ornaments in architecture.

4. A string, consisting of flowers, fruit, leaves, and branches, either singly, by themselves, or intermixed with each other, and supported at the two extremes, the middle part forming itself into a curve by its gravity; this figure, so suspended, is called a festoon.

5. A curve line, which is continually changing its course in contrary directions on the same side of it; that is, first concave and then convex, concave again, and then convex again, and so on alternately in this manner, to any number of curves of contrary flexure, is called a serpentine line.

6. If from a stalk, in the form of a serpentine line, a number of branches issue out, twisting themselves in the form of spiral lines on each side of the serpentine line, in all the concave parts on the alternate sides of it, and if these spirals and the stalk be decorated with foliage; a composition so formed is called winding foliage.

PROBLEM I.

To draw ornaments.

The learner should, in the first place, draw a great variety of curve and spiral lines of different descriptions, and compare these figures with each other; by which means he will be able, by sight only, to distinguish each particular species of curve from another: then he ought to endeavour to imitate, with precision, the same things by hand, in all the varieties of positions which he can suggest to himself; and hence he will acquire a freedom of hand in every direction.

When

When he proceeds to copying leaves, a general outline ought to be drawn, circumscribing the whole leaf; he should then form outlines of all the veins, and round every compartment, circumscribing all the different sets of points or raffles; and afterwards proceed to draw the raffles themselves.

The learner having, after sufficient practice in copying, acquired a freedom of hand, I would then advise him to draw from nature, a variety of such things as will be most suitable to the purposes to which they are to be applied. By so doing, the parts of his compositions will always appear rich and natural; and hence he will obtain a greater facility of invention. Having had sufficient practice in drawing from nature, he may then apply himself to the designing of ornaments; for which purpose he will find the first part of the problem, viz. that of drawing curve and spiral lines by hand, to be of the utmost utility in forming the general outline of his design; and for finishing the smaller parts, such as raffles, flowers, fruit, &c. he must apply the knowledge he has acquired in drawing from nature, which will complete his composition.

LEAVES.

Of the acanthus, or bear's-breech, or brank-ursinæ there are several different species.

1. The mollis, or common bear's-breech, a native of Italy.

2. The spinosus, or prickly bear's-breech, the leaves of which are deeply jagged in very regular order, and each segment is terminated with a sharp spine, as is also the compalement of the flower, which renders it troublesome to handle them.

3. The ilicifolius, or shrubby bear's-breech, grows in both the Indies. It is an evergreen shrub, which rises about four feet high, and is divided into many branches, garnished with leaves like those of the common holly, and armed with spines in the same manner; the flowers are white, and shaped like those of the common acanthus, but smaller.

4. The nigra, or Portugal bear's-breech, with smooth sinuated leaves, of a livid green colour.

5. The middle bear's-breech, with entire leaves, having spines on their border.

The

21 28 5

16 27 1 - 8

ELEMENTS of FOLIAGE.

Fig. 1. No. 2. Fig. 1. No. 1.

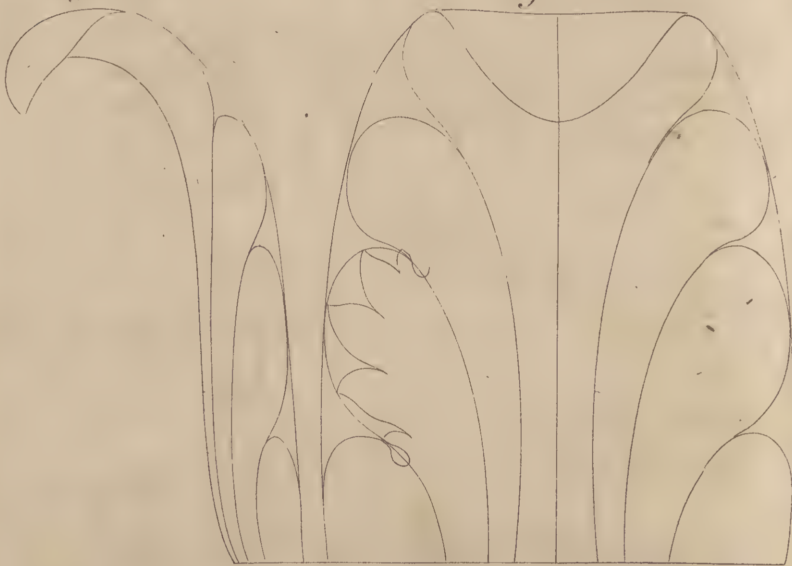
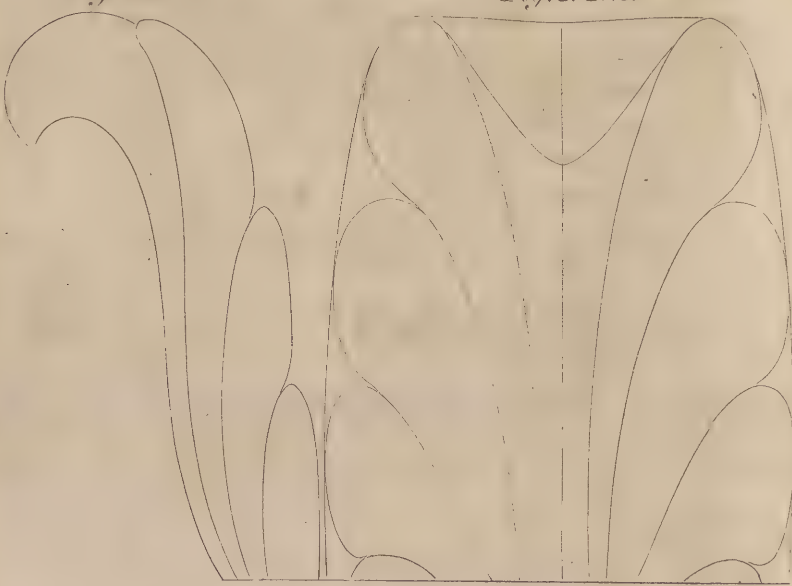


Fig. 2. No. 2. Fig. 2. No. 1.



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London Published Feb.y 1796, by P. Nicholson & Co.

The following examples are taken from the remains of the most esteemed buildings of Grecian and Roman antiquity.

EXAMPLE.

Plate 103 shows the method of beginning to draw leaves, as given in the general problem I.

Suppose it were required to draw or copy plate 104, either of the same size, or in any other ratio to it. First inspect plate 104, and draw with a pencil a faint curve line, circumscribing the contour, or general outline of No. 1. then describe curve lines similar to it; at No. 1. plate 103, draw lines faintly with a pencil, circumscribing the compartments or divisions of No. 1. plate 104; then draw lines in a similar manner at No. 1. plate 103, observing that all the parts are similar to No. 1 plate 104; next draw the raffles and veins in the compartments of No. 1. plate 103; and, lastly, with a pen, draw in ink all the parts of the leaf represented by No. 1. plate 104, and No. 1. plate 103; then rub your drawing clean; the pencil lines will be rubbed out, and the ink lines will be left, and will represent a figure similar to fig. 1. plate 104.

This explanation will be sufficient for all the following examples, however dissimilar they may be. I would advise the learner to go through all the varieties of ornaments exhibited in this work, by which means he

he will be able to apply himself to any other species of ornaments, however different. In the following descriptions, it will be only necessary to mention the names of the buildings from which the examples were taken.

Plate 104.

Fig. 1. No. 1. is taken from the arch of Adrian, at Athens.

Fig. 1. No. 2. The profile of No. 1.

Fig. 2. From the monument of Lysicrates, at Athens, commonly called the lantern of Demosthenes.

Fig. 2. No. 2. the profile of do.

Plate 105.

Fig. 1. from the temple of Pola, in Istria.

Fig. 2. a profile of do.

Fig. 3. from the arch of Adrian, at Athens.

Fig. 4. a profile of do.

Plate 106.

Fig. 2. Elevation of a leaf taken from the capitals of the columns on the baths of Dioclesian, at Rome.

Fig 1. profile of do.

Fig. 4.

Pl. 104.

ELEMENTS of FOLIAGE

Fig. 1. N.º 1.

Fig. 1. N.º 2.

Fig. 2. N.º 1.

Fig. 2. N.º 2.

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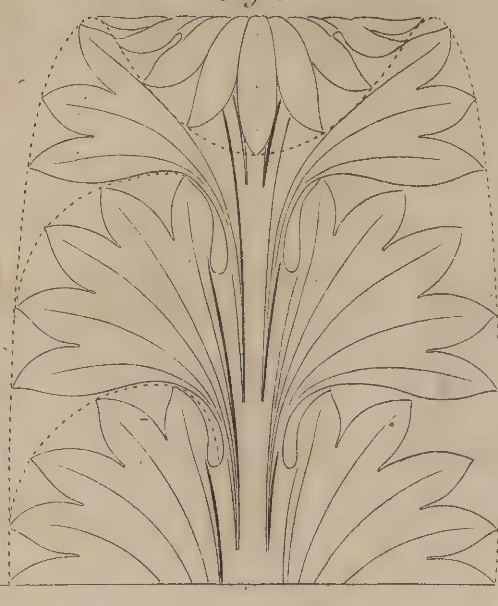
ELEMENTS OF FOLIAGE

Fig. 2.

Fig. 1.

Fig. 4.

Fig. 3.



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ELEMENTS OF FOLIAGE

Pl. 10

1

2

3

4

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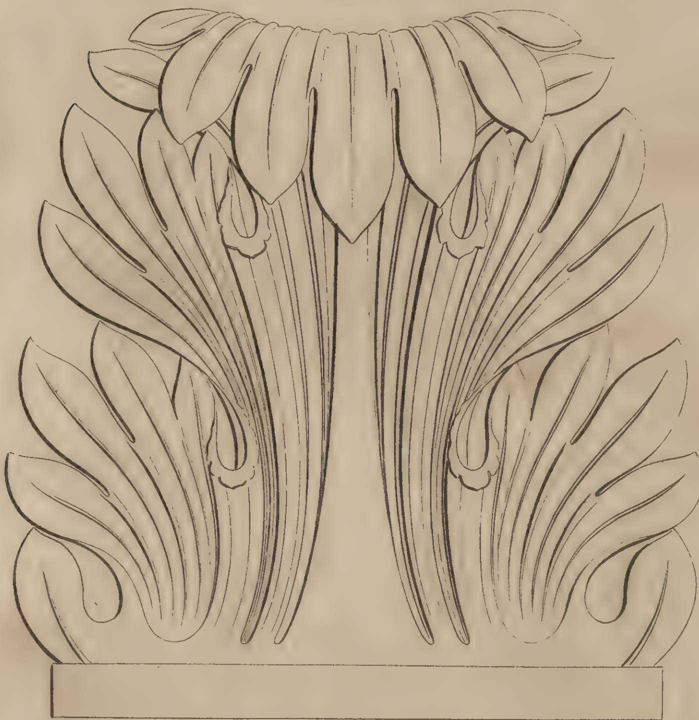
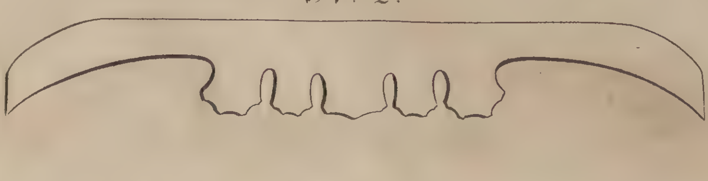
ELEMENTS of FOLIAGE.

From the Capitals of the Temple of Jupiter Stator at Rome.

No. 1.



No. 2.



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ELEMENTS of FOLIAGE.

From the Capitals of the Temple of Jupiter Stator at Rome.

Drawn accurately from a Cast by P. Nicholson. W. Lowry sculp.

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Fig. 1.

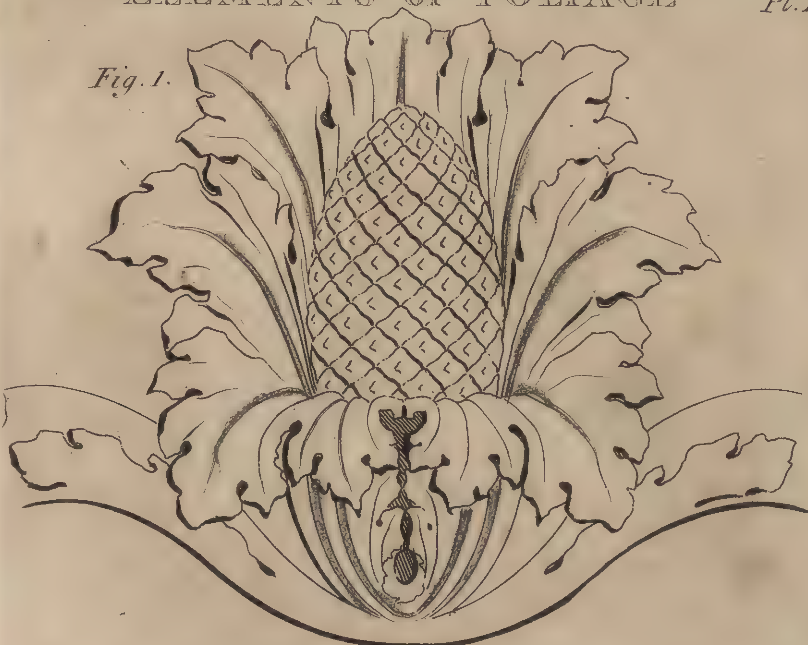
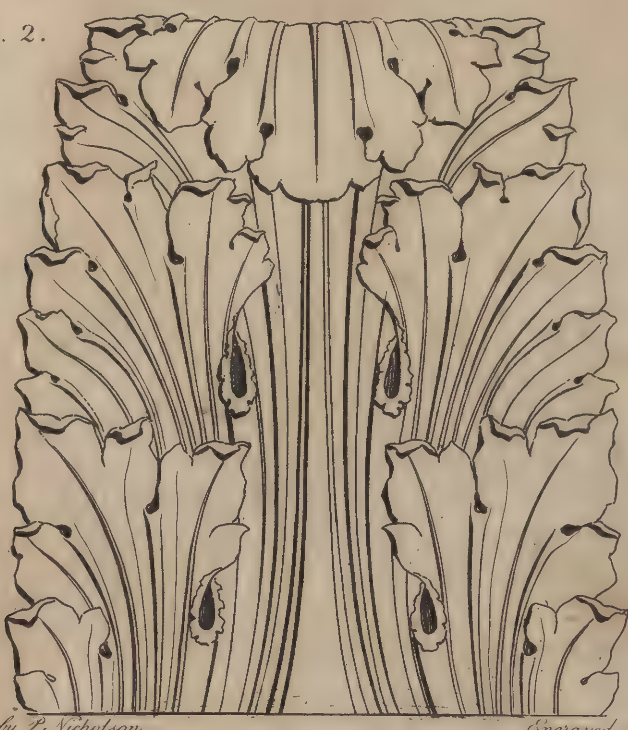


Fig. 2.



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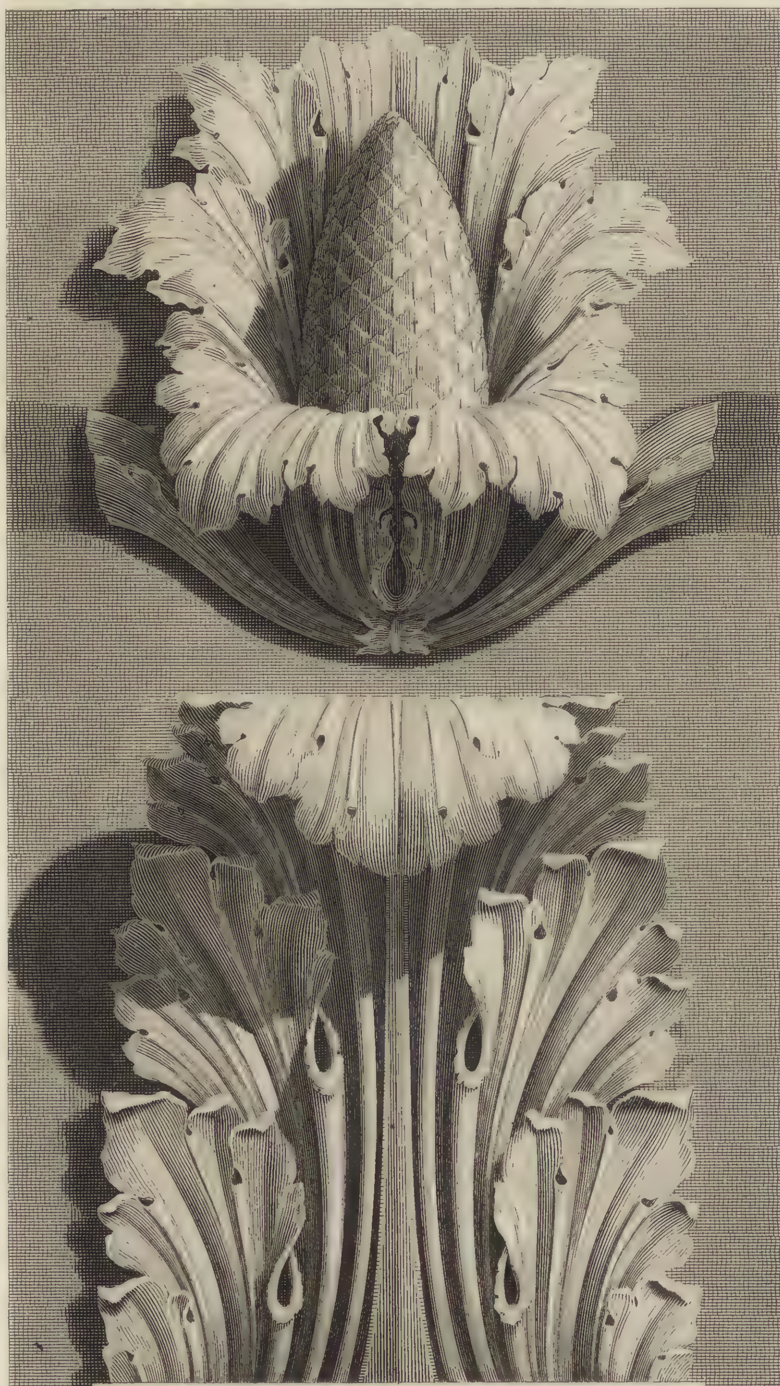
ELEMENTS OF FOLIAGE



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Pl. III.

ELEMENTS of FOLIAGE.

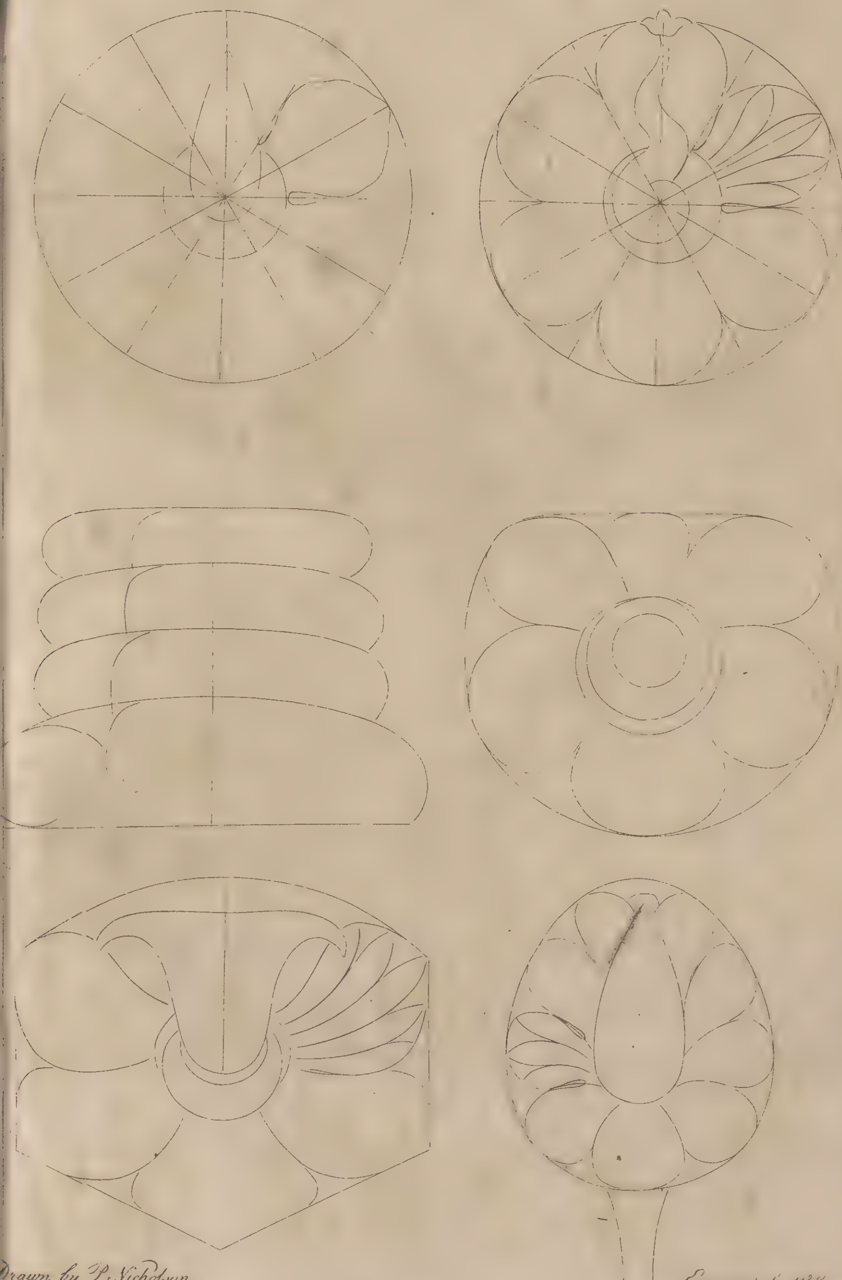

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Fig. 4. Elevation of a leaf taken from the Basilica of Antoninus, at Rome.

Fig. 3. Profile of do.

PLATE 107.

Elevation of a leaf taken from the temple of Jupiter Stator, at Rome.

PLATE 108.

The contents of plate 107, shadowed.

PLATE 109.

Elevation of a leaf taken from the arch of Titus, at Rome, and of a rose in the abacus of the capital.

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PLATE 112.

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Fig. 2.

Fig. 2. The elevation of a rose taken from the temple of Jupiter the thunderer, at Rome.

Fig. 3. Elevation of a rose in the abacus of the capitals of the arch of Titus, at Rome.

Fig. 4. Elevation of a rose in the abacus of the capitals of the Pantheon, at Rome.

Fig. 5. Elevation of a rose in the abacus of the capitals of the pilasters of the frontispiece of Nero, at Rome.

Fig. 6. Elevation of a rose from the abacus of the capitals of the temple of Vesta, at Rome.

ORNAMENTS FOR MOULDINGS
IN THE ROMAN TASTE.

PLATE 113.

Fig. 1. From the cima-recta of the cornice of the temple of peace, at Rome.

Fig. 2. From the cima-recta of the cornice of the forum of Nerva, at Rome.

Fig. 3.

ELEMENTS of FOLIAGE.

Fig. 1.

Fig. 2.

Fig. 3.

Fig. 4.

Fig. 5.

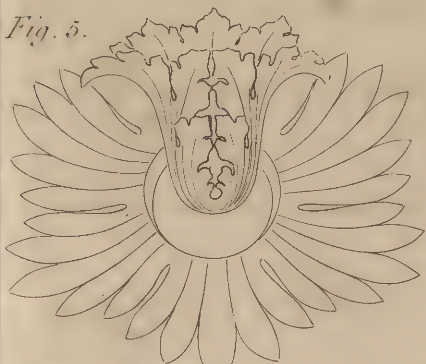
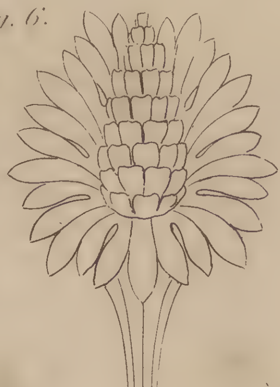


Fig. 6.



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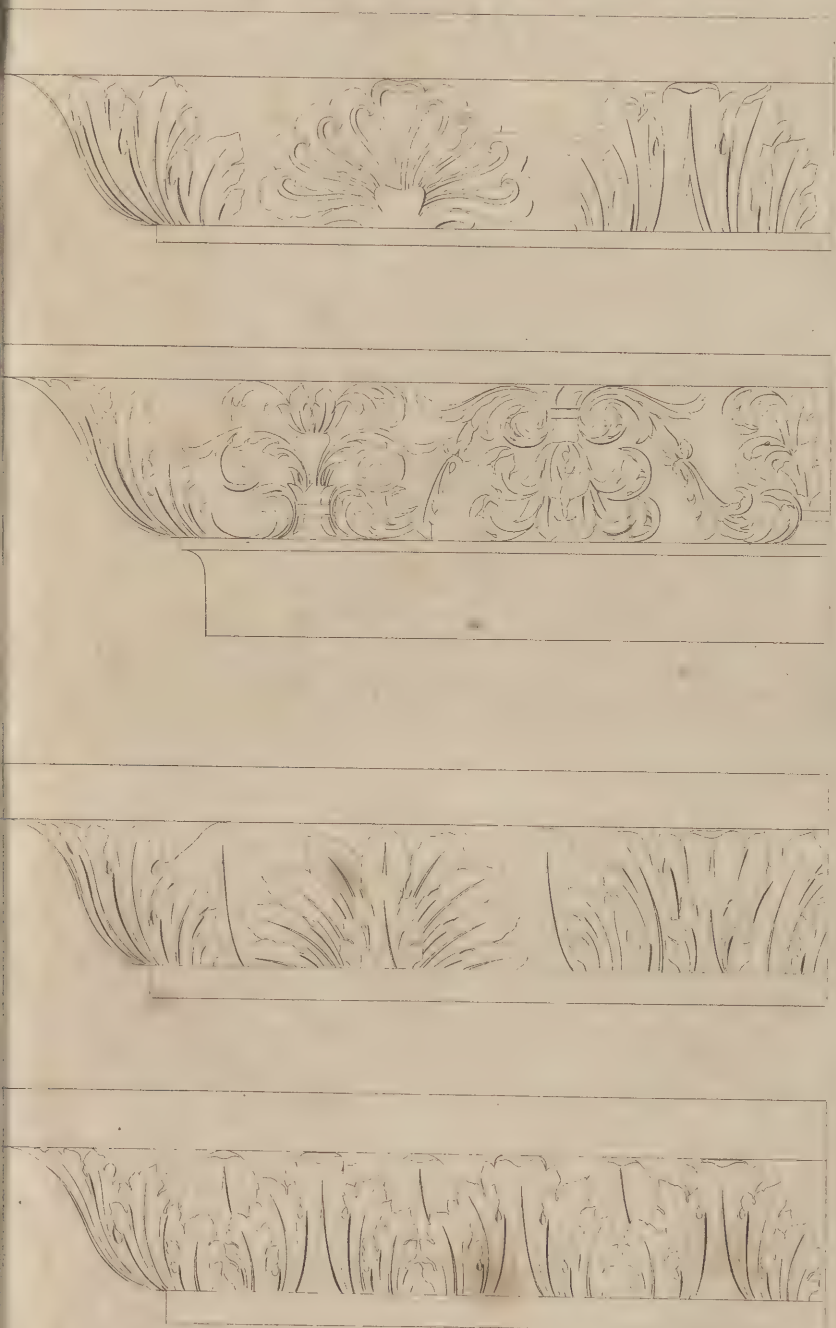

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Pl. 114.

GRECIAN ARCHITECTURE

Fig. 1.

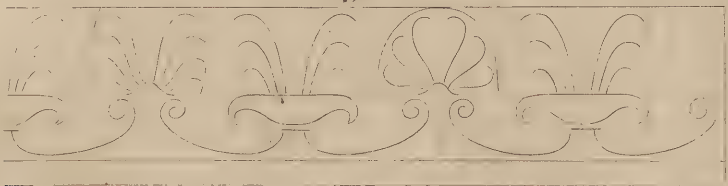

Fig. 2.

Fig. 3.

Fig. 4.

Fig. 5.

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ELEMENTS OF FOLIAGE

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Fig. 3. From the cima-recta of the cornice of the arch of Titus, at Rome.

Fig. 4. From the cornice of the pedestals in the Goldsmith's arch at Rome.

ORNAMENTS FOR MOULDINGS
IN THE GRECIAN STYLE.

Plate 114.

Fig. 1. A general outline of fig. 2.

Fig. 2. The outline of a cymatium from the temple of Minerva Polias, at Priene.

Fig. 3. General outline of fig. 4.

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MODILLIONS and CONSOLES.

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Fig. 2. Side of the modillion in the cornice of the portico of the Pantheon at Rome.

Fig. 3. Ichnography of do. inverted.

Plate 116.

Side of the console in the key stone of the arch of Titus, at Rome.

Plate 117.

Fig. 1. Front of the key stone of the arch of Septimius Severus, at Rome.

Fig. 2. Side of do.

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An ornament in the middle of the antæ of the capitals in the temple of Apollo Dedymus.

FRIZES AND ENRICHMENTS

FOR PLANE SURFACES OF

ROMAN WINDING FOLIAGE.

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Example 2.

Fig. 2. Taken from the temple of Peace, at Rome.

Plate

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ELEMENTS OF FOLIAGE

Fig. 2.

Fig. 1.

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Fig. 1.

Fig. 2.

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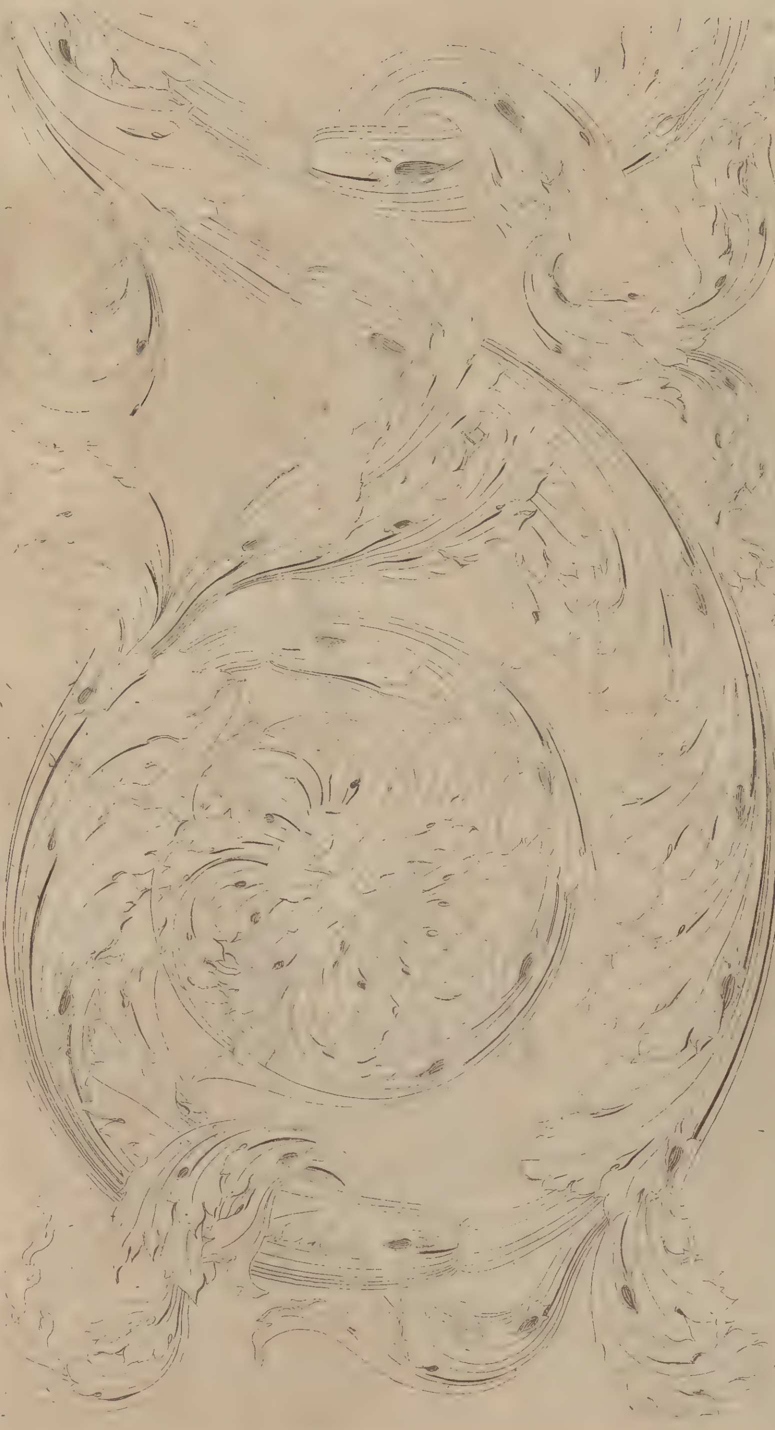
Pl.120.



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Pl. 122.

ELEMENTS OF FOLIAGE

Fig. 2.

Fig. 1.

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ELEMENTS OF FOLIAGE

Fig.1.

Fig.2.

Fig.3.

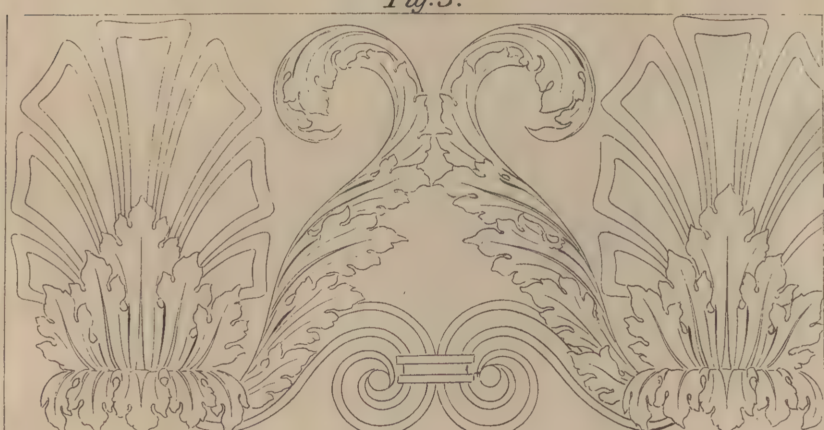

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Plate 120. *Example* 3.

Taken from the frontispiece of Nero, at Rome.

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Frize of the flank of the temple of Pola, in Istria.

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Fig. 2. From the middle facia in the architrave of the three columns in the campo Vaccino at Rome.

Plate 123.

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From the portico of the temple of Antoninus and Faustina, at Rome.

PLATE 126.

An ornament taken from the temple of Apollo Dedymus.

PLATE 127.

An ornament in the capitals of the three columns, in the campo of Vaccino, at Rome, the remains of the temple of Jupiter Stator.

ELEMENTS OF FOLIAGE

I Nicholson Del^t

W Lowry sculp^t

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ELEMENTS OF FOLIAGE

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Pl. 127.

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OF THE

GRECIAN ORDERS

OF

ARCHITECTURE,

AND THEIR ORIGIN,

FROM VITRUVIUS.

WHEN Dorus the son of Helenus, and the nymph Optice, reigned over Achaia, and all Peloponesus, he built, in the ancient city of Argos, a temple to Juno, which was formed by chance of this order, which was afterwards used in the other cities of Achaia, while yet the ratio of its symmetries was not discovered.

Afterwards the Athenians, according to the responces of the Delphian Apolla, by the common consent of all Greece, sent out thirteen colonies at one time into Asia, and, appointing a leader to each colony, they gave the chief command to Ion, the son of Xeuthus and Creusa, whom also Apollo of Delphos acknowledged as his son. These colonies he led into Asia, and seized upon the country of Caria, and built the large cities of Ephesus, Miletus, Myunta (which was swallowed up by water, and

and its sacred rights and privileges given by Ion to the Milesians) Priene, Samos, Teos, Colophana, Chios Erethro, Phocis, Clazomeno, Lebedos, and Melite.

This latter, on account of the arrogance of its inhabitants, were destroyed in the war declared against it by the unanimous determination of the other states, and in stead of it afterwards by the beneficence of King Attalus, and Arsinoe, the city of Smyrna was received by the Ionians. These states, where they had driven out the Carians and Lelegae, called their country Ionia, after their leader Ion.

There they began to erect and dedicate temples to the immortal Gods, and first they built a temple to Apollo Panionios, in the manner they had seen in Achaia, which manner they called Doric, because they had first observed it in the Dorian states. In this temple they wished to use columns, but not knowing their symmetries, and considering how they should proportion them, so that they might support the weight, and have a graceful appearance, they measured the length of the human foot, and as they found it to be the sixth part of the height of a man, they made use of this proportion for their columns, making the thickness of the shaft at the bottom the sixth part of the height, including the capital. Thus the Doric column, having the proportions of the human body, began to be used with solidity and beauty in buildings.

Afterwards, when they were desirous of building a temple to Diana, they conceived a new species of order from a similar principle, making use of the proportions

of

of a woman ; they made the thickness of the column the eight part of its height, and that it might appear more graceful, they put mouldings round the base to represent the shoe, and volutes in the capitals resembling the twisted braids of hair dropping to the right and left, and the cymatium and encarpi for the locks disposed on the forehead ; they also made flutings on the shafts from top to bottom, like the folds in the garments worn by matrons.

Thus the two species of columns were composed, one imitating the strength and simplicity of man, the other the elegance and fine proportion of woman : but posterity, improving in judgment and knowledge, and delighting in more graceful proportions, made the height of the Doric column 7 diameters, and that of the Ionic $8\frac{1}{2}$. This species was called Ionic, because it was invented by the Ionians.

The third, which is called Corinthian, imitates the delicacy of virgins, for in that tender age the limbs are formed more slender, and admit of more graceful ornaments. The invention of its capital is thus related :

A Corinthian virgin, just marriageable, being seized with a disorder, died. After her interment, her nurse collected some vases which pleased her when living, put them into a basket, and carried it to her tomb, and placed it on the top ; and, that it might endure longer in the open air, she covered it with a tile. The basket happened to be placed upon the root of an acanthus, which, being depressed in the middle, the leaves and stalks in the spring grew up round the sides of the basket,

basket, but finding themselves resisted by the angles of the tile, were obliged to convolve at the extremities in the form of volutes. At that time Callimachus, who, on account of his taste and skill in sculpture, was called by the Athenians, Catatechnos, happening to pass by this monument, observed the basket and the delicate foliage growing round it, and, being pleased with the novelty of its form, he made some columns from this model, near Corinth, and thence composed the symmetry, and distributed the proportions of the Corinthian Order in the most exquisite manner.

DEFINITION OF THE ORDERS.

1. If any number of frustums of cones, or frustums of conoids of similar solids, and equal magnitudes with each other, be so arranged that their bases, which is the thickest ends of the frustums, may stand upon or in the same horizontal plane, and their axes in the same plane with each other, and perpendicular to the horizon, and if on the tops of these frustums be laid a continued beam, and if over this beam be laid the ends of a number of equidistant joists, the other ends being either supported in the same manner, or by a wall, or any piece of building whatever, so that the upper and under surfaces may be in the same horizontal planes, and if over the ends of these beams, be laid another beam parallel to the former, which lays upon the frustums, but projecting farther out from the axis of the columns than the verticle face of the lower beam which is over the frustums, and if this beam support the ends of rafters, whose upper surfaces lay in the same in-

inclined plane, so as to support a covering or roof: the whole of this mass, together with the frustums supporting it, is called an order.

2. If the bottom or lower end of the frustum, finish with an assemblage of mouldings, projecting equally all round beyond the bottom of the frustum, then this assemblage is called a base.

3. If the upper end of the frustum finish with mouldings, or any kind of ornaments, and if these ornaments or mouldings be covered with a solid, whose upper and lower sides are squares, and the vertical or perpendicular sides rectangles; then this solid, together with the ornaments or mouldings under it, is called a capital.

4. If the frustum has no base, then the capital and frustum together, is called a frustum column; but if the frustum has a base, then the base, frustum, and capital, taken together, are simply called a column.

5. The mass supported by the columns, is called an entablature.

6. The under beam of the entablature is called an architrave, or epistylium.

7. The space comprehended between the upper side of the epistylium, or architrave, and the under edge of the beam over the joists, is called the frize, or zophorus.

8. The edge, or profile, of the inclined roof, supported by the joists, or cross beams, jetting out beyond the face of the zophorus, or frize, is called a cornice.

9. The lowest, or thickest part of the columns, is called the diameter of the columns.

10. Half of the diameter of the columns, is called a module.

11. If a module be divided into thirty, or any other number of equal parts, then each of these parts are called minutes.

12. The shortest distance from the bottom of the frustum of one column, to the bottom of the frustum of the next column, is called the intercolumniation.

13. When the intercolumniation is one diameter and a half of a column, it is called pycnostyle, or columns thick-set.

14. When the intercolumniation has two diameters of the columns, then it is called systyle.

15. When the space between the columns is two diameters and a quarter, then the intercolumniation is called eustyle.

16. When the intercolumniation is three diameters of the columns, then it is called decastyle.

17. When the distance between the columns has four diameters of the columns, then that intercolumniation is called aræostyle, or columns thin-set.

18. When there are four columns in one row, then that number is called tetrastyle.

19. When there are six columns in one row, then it is called hexastyle.

20. When there are eight columns in one row, then it is called octastyle.

DORIC ORDER.

DEFINITIONS.

1. If a plane, A B C D E F G E, one side of which, A B, is a straight line, B C and A E, at right angles to AB; and if CD be an ovolo, D, E, and F, fillets; F G, a hollow, and G E, a straight or convex curve line; so that no part of it between the points G and E, may be farther distant from A B than E is from A B; then if this plane, so constructed, be turned round the line A B, it will generate a round solid; and if a parallelopiped, the two ends of which are equal squares, each side of these squares being a little more than twice B C, and the other four sides equal rectangles; then, if this parallelopiped be fixed upon the end of the round solid, so that one of its square ends be fixed upon the end generated by B C, and the angles of the square to project equally over the round solid, then a solid so constructed is called a column.

2. The parallelopiped fixed on the top, is called an abacus.

3. The figure, or annulus, generated by the echinus D C, is called also an echinus.

4. The annuli generated by the fillets D, E, and F, are each of them called an annulet.

5. That part of the column or the frustum, generated by the curve line G E, is called the shaft of the column.

6. If, through the axis of the shaft, be supposed to pass twenty vertical planes, making equal angles with each other, which will cut the surface of the column in twenty places; and if the surface of the column be curved or hollowed between each two lines, from the bottom to the top of the shaft, terminating immediately under the lowest annulet; then the shaft will have twenty curved sides, and as many angles; and if nearly at the upper end of the shaft be cut one or more groves, of an equal depth from the surface of the hollowing, each grove being parallel to the annulets under the echinus, then a column so formed is called Doric.

7. That part of the column contained between the upper channel and the lower annulet, is called the hypotrachelion, neck, or frize of the capital.

8. That part of the doric column, comprehending the abacus, echinus, annulets, and hypotrachelion, is called a doric capital.

9. If the ends of the cross beams in the frize which lay upon the architrave, be at right angles to the sides of the beams, and parallel to the front of the architrave, and if the two vertical right angles of each beam, formed by the two vertical sides, and the ends be cut away by vertical planes, making equal angles with the sides and ends; that is, 135 degrees with each; and if two other vertical channels are cut on the end, so that the planes, which are three in number, left on the ends of each

each beam, may be equal rectangles, and the two sides of each channel make 135 degrees, with the ends of the joists, and are so disposed, that there may be a rectangle next to each semi-channel, and then two whole channels, leaving a rectangle in the middle; the end of the beam so formed is called a triglyph.

10. If the spaces between the triglyph be filled up with planes parallel to the front of the triglyphs, or to the front of the architrave; and if these planes be in the same plane with each other, and recessed beyond the ends of the triglyph, so as to show a small part of the vertical sides of the beams; that is, to be further in than the channels of the triglyph: then these spaces, so filled up, are called metopes.

11. If the front of the beam which supports the rafters that lay upon the joists, project at some distance beyond the face of the triglyph, the plane of the front being parallel to the ends of the beams; and if a recess be cut from this beam directly over the metopes, the plane of the front of the recess being parallel to, and having a small projecture over the metopes, and the ends of the recesses over the metopes be in the same plane with the vertical sides of the beam; then that part of the front of the beam over the triglyph, is called the capital of the triglyph.

12. The whole face of the work comprehended between the upper edge of the beam which forms the capital of the triglyphs, and the lower end of the triglyphs and metopes, is called a Doric frize.

13. If

13. If from the top of the architrave, project a fillet, whose upper edge is in the same plane with the top of the architrave, or the lower end of the triglyph, the front of the fillet being a vertical plane, parallel to the front of the architrave, having a small projecture beyond the front of the triglyph; this fillet being supposed to be continued the whole length of the architrave, and returning in the same manner round its ends; and if fillets be placed under this fillet, whose fronts stand a little within the front of the upper fillet, but projecting beyond the face of the architrave, and the ends of these fillets, in the same plane with the sides of the triglyph, and consequently each fillet equal in length to the breadth of the triglyph; and if under each of these fillets be fixed six equal similar frustums of cones, at equal distances from each other, whose axes are perpendicular to the horizon, and the same distance from the face of the architrave, so that the extremities of these frustums may not reach beyond the perpendicular of the ends of the fillets above them; then the front of the architrave so formed, is called a Doric architrave.

14. The upper fillet of the Doric architrave, is called a tenia.

15. The fillets under the tenia of the Doric architrave, are each of them called a regula.

16. The little conical frustums under each regula, are called guttæ, or drops.

17. The plain part of the architrave under the tenia and regulæ, is called facia.

18. If

18. If over the capitals of the triglyph be laid another beam, whose front is parallel to the metopes, or to the front of the triglyphs in the frize, having a small projecture from the front of the metopes; and if over this beam be laid the ends of the rafters which support the covering, the ends having a projecture forward and parallel to the beam under them; one rafter over each triglyph, and also one over every metope, placed directly in the middle of each; that is to say, a vertical plane perpendicular through the middle of every metope, and also through the middle of every triglyph, would pass through the ends of all the rafters, and divide them into two equal rectangles; and if over the rafters be laid a beam, the front of which, being a plane parallel to the ends of the rafters, has a projecture; and if the void spaces between each two rafters, and the under side of the beam above the rafters, and the upper side of the beam below the rafters be covered in, so that the front of the spaces so covered may be in the same vertical plane, with the face of the beam under the rafters; then that part of the ends of the rafters, projecting over the face of the beam under them, are called mutules.

19. If to the under side of the mutules be hung three rows of small conical frustums, of the same size as those under the regulæ of the architrave, so that there may be six in length in each of the rows, and three in width; then these conical frustums are also called guttæ, or drops, as those in the architrave.

20. The front of the beam lying over the mutules, is called corona, or drip, or larmier.

21. The under side of the beam, lying over the mutules, is called soffit, or lacunar.

22. A building, whether of wood or stone, or any other materials, having columns supporting an entablature over them, as described in the preceding definitions; such a building, so constructed, is said to be of the Doric Order.

Having defined the principal parts of this order, it may not be improper to observe, that the doric order has in general, more mouldings in the cornice; but as these vary in different buildings, and as the members already described form its most striking features, it would therefore have been useless to have taken any account of them in the definitions.

PROBLEM I.

To draw the elevation of a Grecian Doric Order.

Make the lower diameter of the shaft of the column one eighth of the entire height of the order; divide the diameter of the column into two equal parts, then one of these parts is a module; divide the module into thirty equal parts, and each of these parts will be a minute; make the height of the column twelve modules, the height of the capital one module; divide the height of the capital into five equal parts; give one to the hypotrachelion, and two parts to the annulets and echinus; make the annulets one quarter of the echinus, and the remaining two parts to the abacus: make the upper diameter of the shaft three quarters of the lower diameter of the shaft; the length of each side of the abacus two modules and one fifth, or two modules and twelve minutes;

minutes; the height of the entablature will be four modules, of which the height of the cornice will have one module, and the frize, and architrave, each forty-five minutes, or one module and a half; divide the height of the frize into eight parts; give the upper one to the capital of the triglyph, and the three lower for the channels; make one edge of the triglyph in the columns at the angles of the building, directly over the axis of the column, the breadth of the triglyph twenty-eighth minutes, having the other edge of the triglyph directly at the angle of the building; and make the distance between the triglyph, or width of the metopes, equal to the height of the frize, forty-two minutes; place all the columns between the two extreme ones, directly under the middle of the triglyphs. Make the height of the tænia one tenth of the height of the epistilium; and the height of the regula, together with the guttæ, equal to the height of the tænia. The height of the cornice being one module; make the height of the small bead on the lower part of the cornice one minute; the height of the mutules, including the guttæ, four minutes and a half; the length of the mutules equal to the breadth of the triglyphs, and their projection beyond the faces of the triglyphs two-thirds of their length, observing that one should be directly over the middle of every triglyph, and one over the middle of every metope; make a fillet above the mutules one minute and a half high, to project beyond the mutules half of a minute over this fillet; make the height of the corona one third of a module, or ten minutes, having a projecture over the fillet one minute; make the height of the small echinus one minute and a quarter; over the echinus, make a fillet of the same height; over the fil-

 let,

let, make another echinus six minutes and a half high, and two minutes will remain for the height of the fillet above the echinus.

In order to establish the proportions and true taste of the original Doric order, the following examples are taken from the most celebrated buildings now remaining of this order. The module is divided into thirty parts, or minutes; the measures are all numbered in these parts; the projections are reckoned from a line representing the axis of the column, and are figured at the extremities of each member.

GRECIAN ARCHITECTURE.

EXAMPLE I. Plate 128.

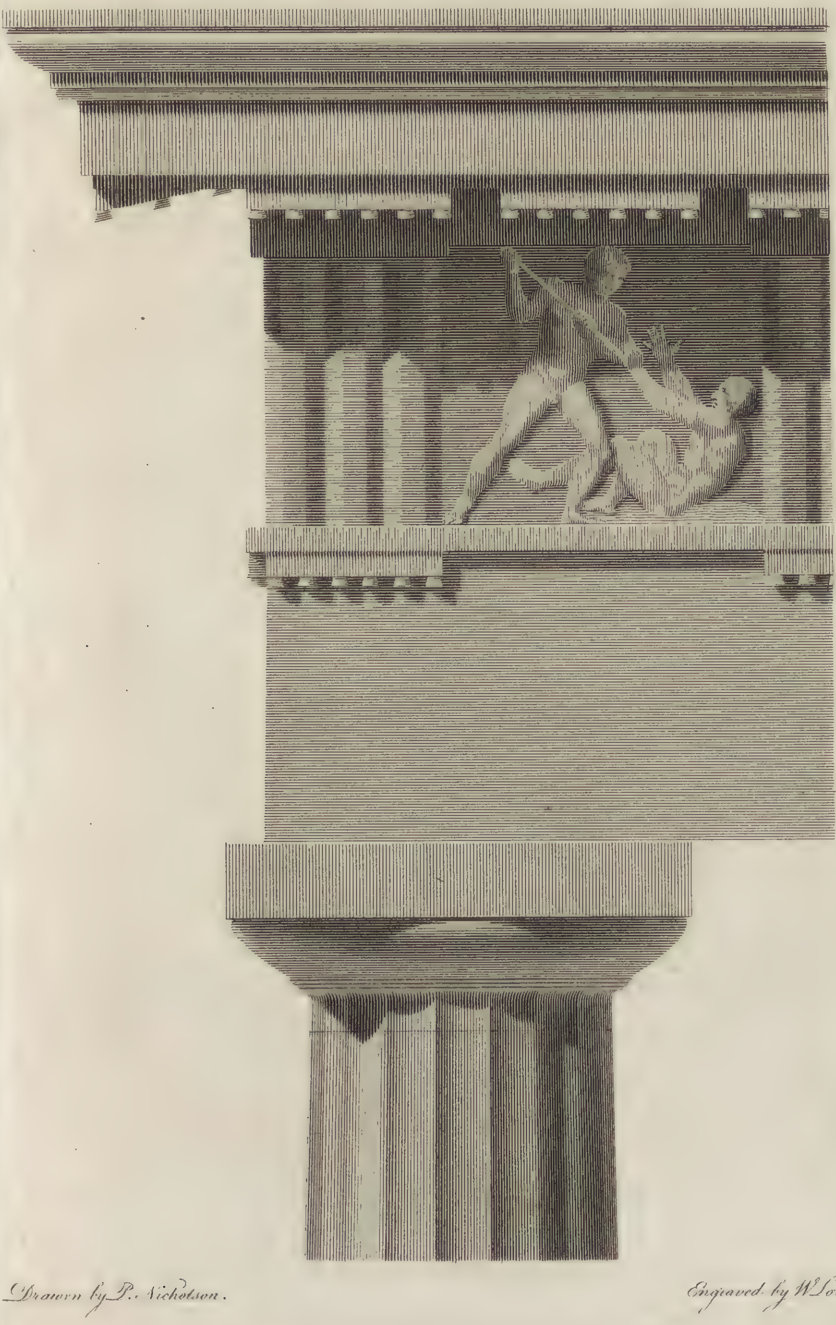
Elevation of the Doric Order on the Temple of Theseus, at Athens.

This temple is one of the most antient examples of the Doric order now existing, it was erected about ten years after the battle of Salamine, by Cimon, the son of Miltiades. The ceiling of the porch is remarkable for its construction, there are great beams of marble, the upper sides of which are level with the bed of the cornice, and the ends corresponding exactly to the triglyphs in the frize, which gives the idea of the disposition of the timbers which were first used in buildings, and from which the Doric order had its origin.

This

GRECIAN ARCHITECTURE

From the Temple of Theseus at Athens.



Drawn by P. Nicholson. Engraved by W. Lowry

London, Published Sept. 1796, by P. Nicholson & C.º

GRECIAN ARCHITECTURE

From the Temple of Theseus at Athens.

Fig. 1.

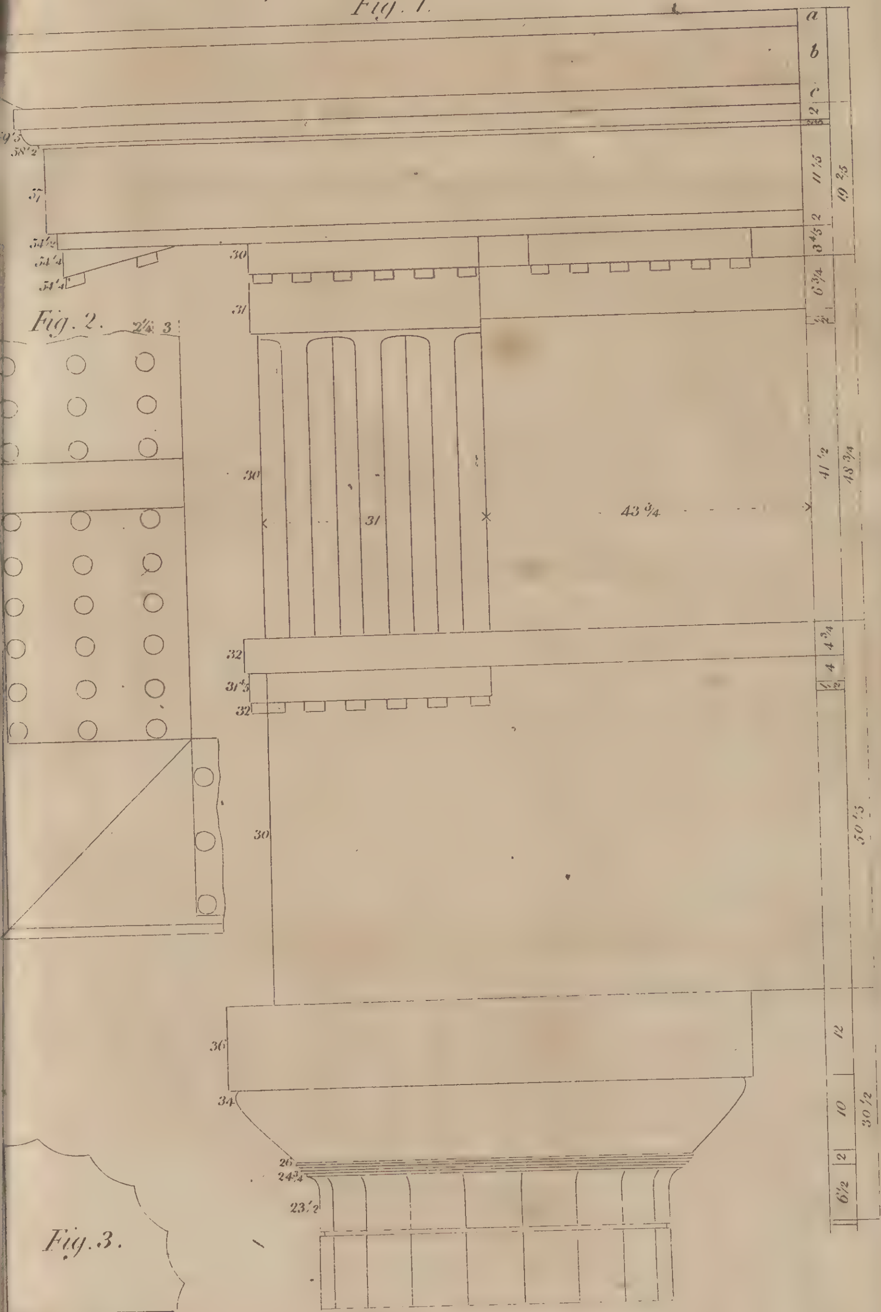


Fig. 3.

[D]rawn by P. Nicholson

Engraved by W. Lowry

London, Published by P. Nicholson & C.º July 1797.

This building is adorned with beautiful sculpture, the metopes of the frize are charged with historical figures, on which are represented various exploits of Theseus; the battle he had with Sinis, the notorious robber, who dwelt in the Isthmus of Corinth; Theseus is represented making Sinis undergo those torments which he had inflicted on others.

In the basso relievo is represented a man taking hold of another by his middle, and endeavouring to throw him down: this was doubtless intended to represent Theseus throwing Sciron from a rock; the combat of Theseus with the wild sow of Crommyon, which was killed by that hero. In another basso relievo, is represented a man presenting his hand to a woman, perhaps to express the rape of Ariana, or Helen, by Theseus. Some others of the basso relievos in the metopes are less distinguished; the two mentioned by Pausanias are still to be seen on the front of the temple: one represents the battle of the Athenians with the Amazons; the other the dispute of the Centaurs and the Lapithæ; Theseus in this kills a Centaur with his own hand. The first seems to represent the instant when the Athenians granted peace to the Amazons, for there the women are represented as sitting. The inside of the temple is not ornamented like the outside.

This temple is now a Greek church, dedicated to St. George, and is at present in high esteem among the Athenians.

Plate 129.

Fig. 1. The elevation of the order, with the heights and projections of the members in numbers. The figures in the metopes are omitted.

Fig. 2. Ichnography of the soffit inverted.

Fig. 3. Plan of one quarter of the columns.

The height of the columns of this order is eleven modules, and twelve minutes and a half. The echinus of the capital is very flat; but, having a considerable projection, renders it very graceful and bold.

EXAMPLE II. Plate 130.

Elevation of the Doric Order on the Temple of Minerva, at Athens, called Parthenon.

Minerva, to whom this temple was dedicated, was the chief goddess of the Athenians. This temple is the most beautiful piece of antiquity remaining; it was built by Pericles, who employed Ictimus and Callicrates for his architects; the entablature is charged with historical figures of admirable workmanship; the figures of the pediment, though seen at so great a height, appear to be as large as life, being in alto relievo, and well executed; the figure in the middle seems to have been made for Jupiter, its right arm is broken off, which probably held the thunder; it is likely that between his legs was placed the eagle; for the beard and majesty, and expression of his countenance, and the figure being naked, as he was usually represented by the Greeks, sufficiently shows it to have been made for Jupiter. At his right hand is another figure covered half way down the legs, coming towards him; which perhaps was a Victory, leading the horses of Minerva's triumphal chariot, which follows it; the horses are finished with great art; the vigour and spirits peculiar to these animals seems here to receive addition, as if inspired by the goddess they draw; Minerva, in the chariot, is represented rather

GRECIAN ARCHITECTURE

From the Temple of Minerva at Athens.

Drawn by P. Nicholson. Engraved by W. Lowry.

London, Published May 1797, by P. Nicholson & C.°

rather as the goddess of learning than of war, without helmet, buckler, or a Medusa's head on her breast, as Pausanius describes her image within the temple. Behind her is another figure of a woman sitting. The next two figures in the corner, are the Emperor Hadrian, and his Empress Sabina*. On the left hand of Jupiter are five or six figures, which appear to be an assembly of the gods, where Jupiter introduces Minerva, and acknowledges her his daughter.

The pediment at the other end of the temple, was adorned with figures, expressing Minerva's contest with Neptune, about who should name the city of Athens; of which there only remains a part of a sea-horse.

The frize is charged with basso relievos of excellent workmanship, on which are represented the battles of the Athenians with the Centaurs: those appear to be as old as the temple itself.

Within the portico on high, and on the outside of the cella of the temple, is another border of basso relievos round it, at least on the north and south sides, which is, without doubt, as antient as the temple, and of admirable workmanship, but not in so high a relievo as the other; on it are represented sacrifices, processions, and other ceremonies of the heathen worship.

This temple is now turned into a Turkish mosque.

PLATE 131.

The measures in numbers.

Fig. 1. Shewing the return of the flank at the angle of the building. The figures in the metope are omitted.

Fig. 2.

* The heads of Hadrian and Sabina might have been put on one of the old figures, which was very customary among the Romans.

Fig. 2. Part of the soffit of the cornice inverted.

Fig. 3. A section of a part of the cornice at A, fig. 1.

Fig. 4. A section through another part of the cornice at B.

Fig. 5. One quarter of the plan of the column.

The height of the columns is eleven modules and four minutes. The mouldings in the entablature, and also the proportion of the column, and form of the echinus in the capital, very much resemble those of the temple of Theseus.

Plate 132.

Fig. 1. Half of the capital to a larger size, showing the manner of drawing the echinus.

Fig. 2. A section through the annulets of ditto, of a size much greater.

Fig. 3. Part of a capital of the inside columns, showing the manner of drawing the echinus.

Fig. 4. Section through the annulets of ditto, to a larger size.

EXAMPLE III. Plate 133.

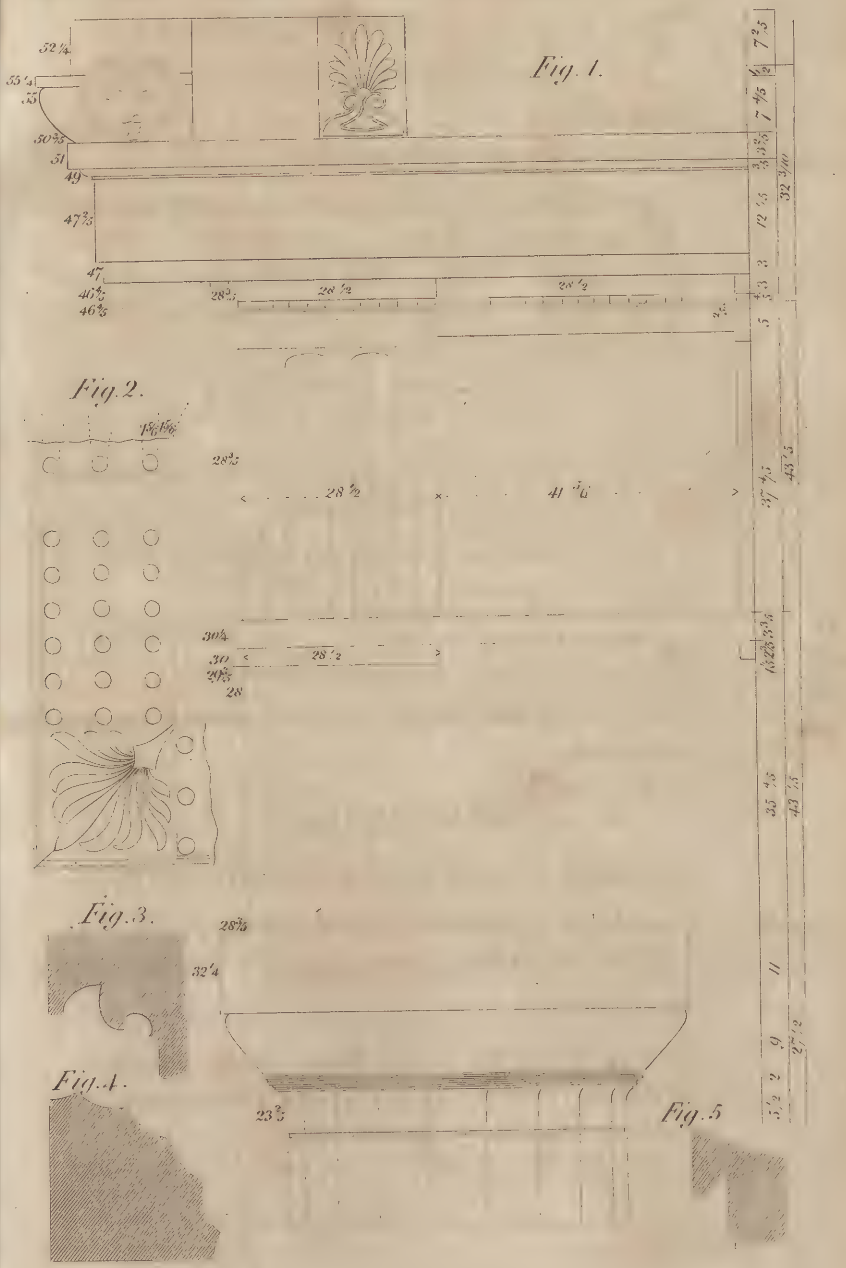
Elevation of the Remains of the Doric Order of the Propylea, or grand Entrance into the City of Athens, with the Proportions in Numbers.

This building was begun during the administration of Pericles, by Menesicles, a famous Grecian architect, and completed in five years.

The

GRECIAN ARCHITECTURE,

From the Temple of Minerva at Athens.



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GRECIAN ARCHITECTURE

From the Temple of Minerva at Athens.

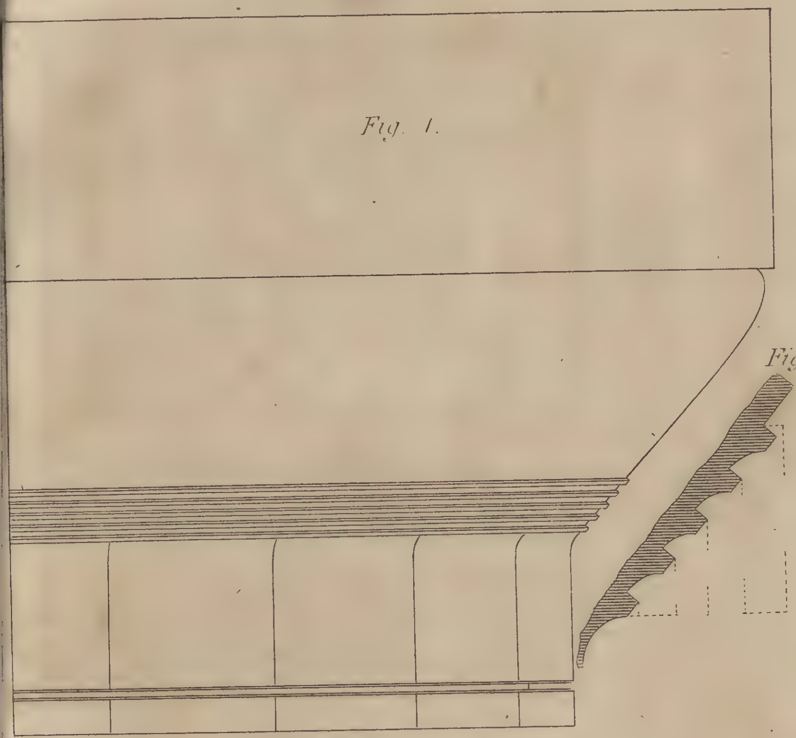
Fig. 1.
Fig. 2.

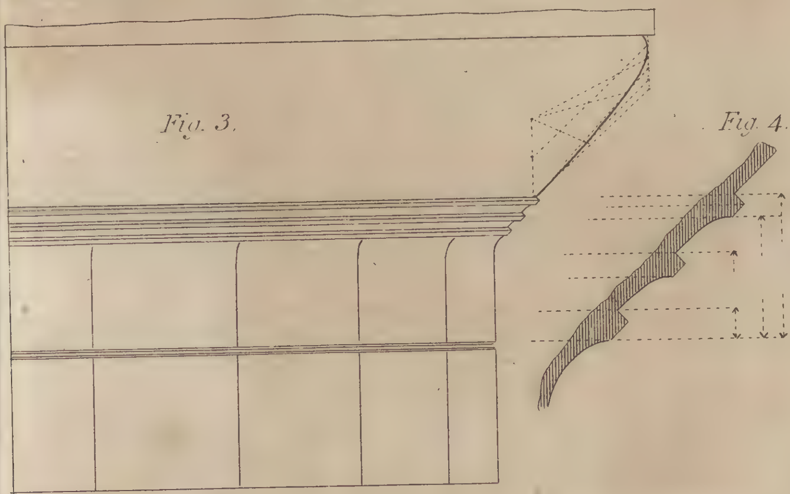
Fig. 3.
Fig. 4.

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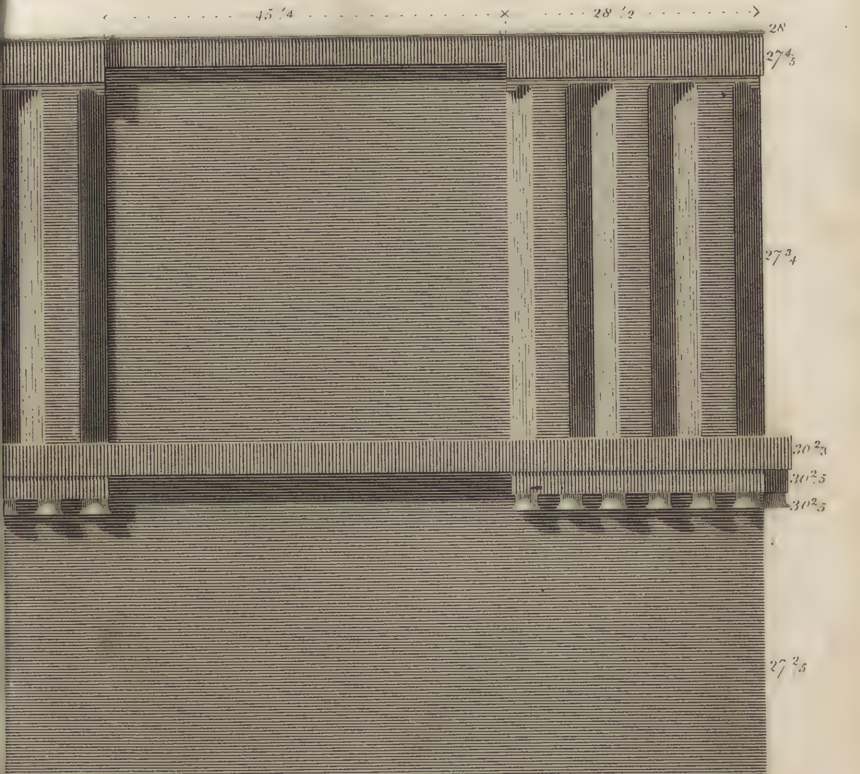
GRECIAN ARCHITECTURE

From the Propylea at Athens.



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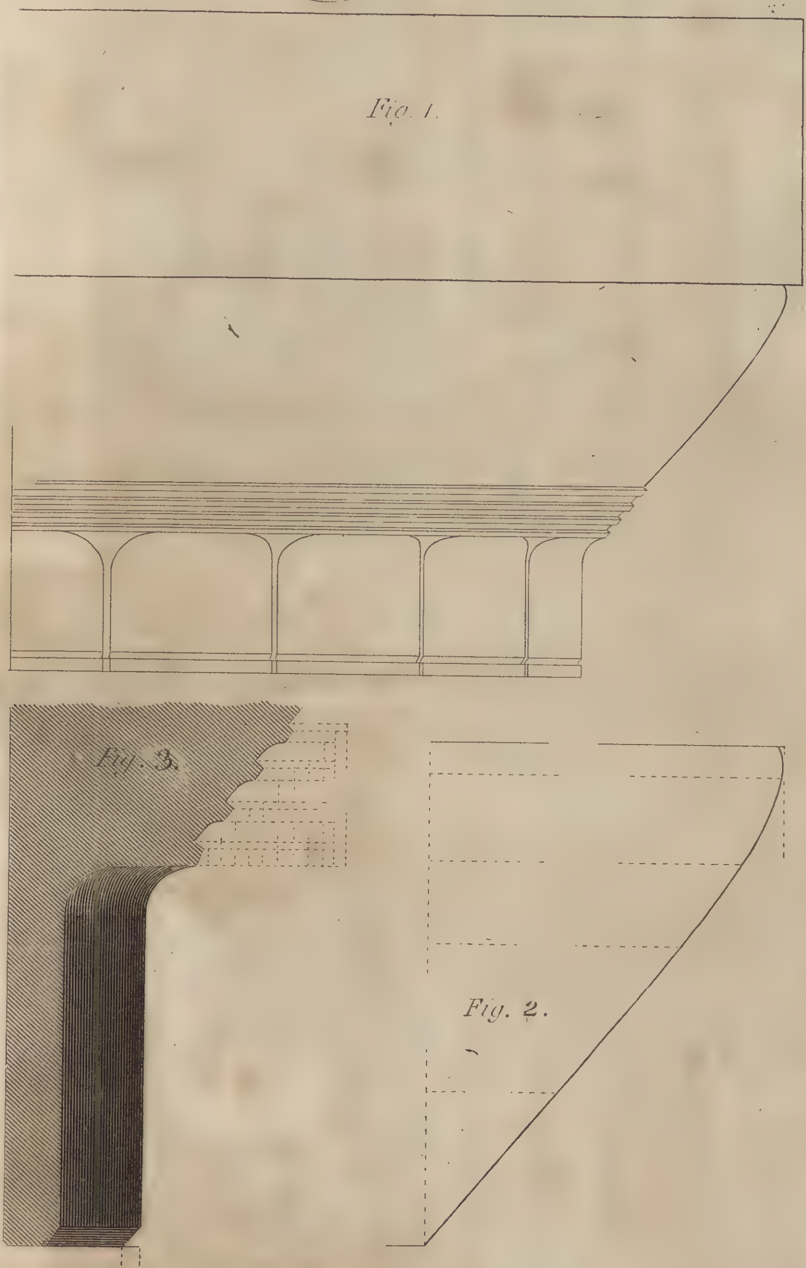
GRECIAN ARCHITECTURE

From the Propylea at Athens.



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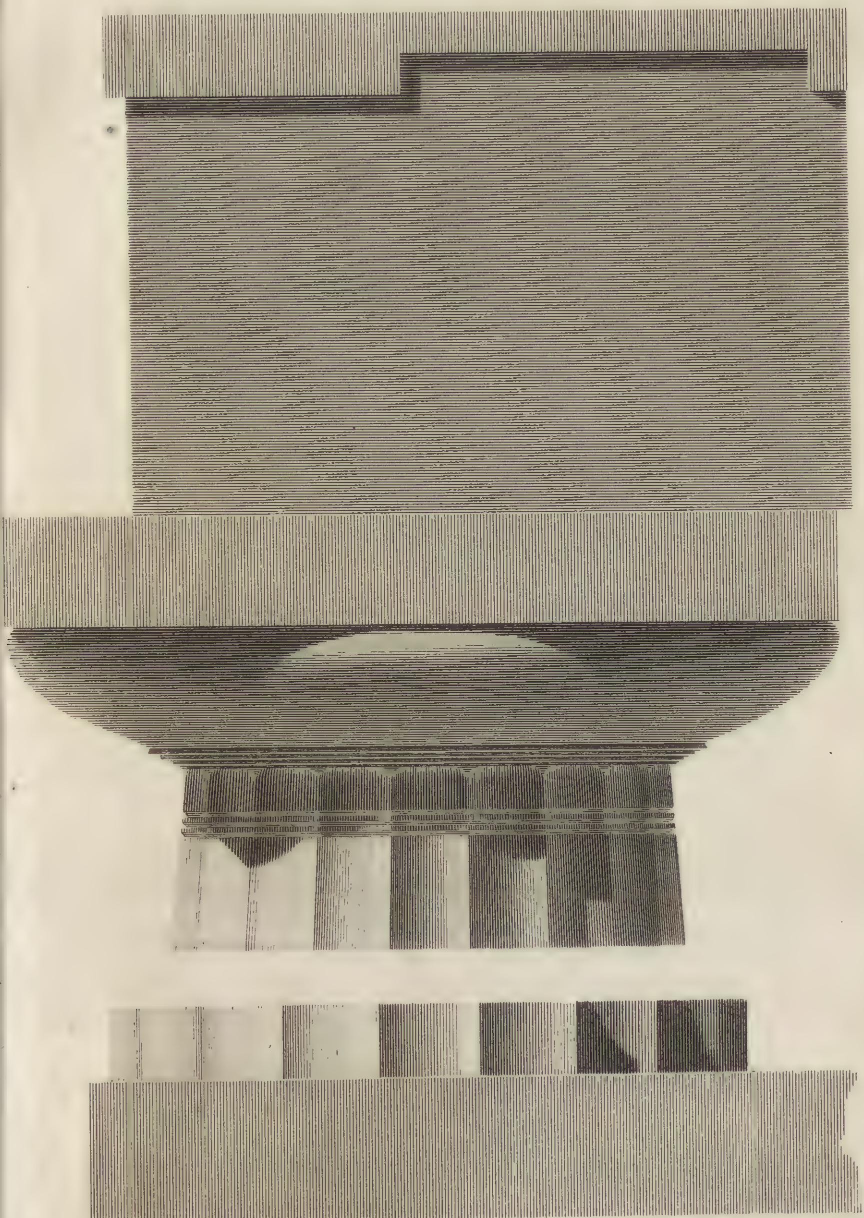
GRECIAN ARCHITECTURE

From the Temple at Corinth.



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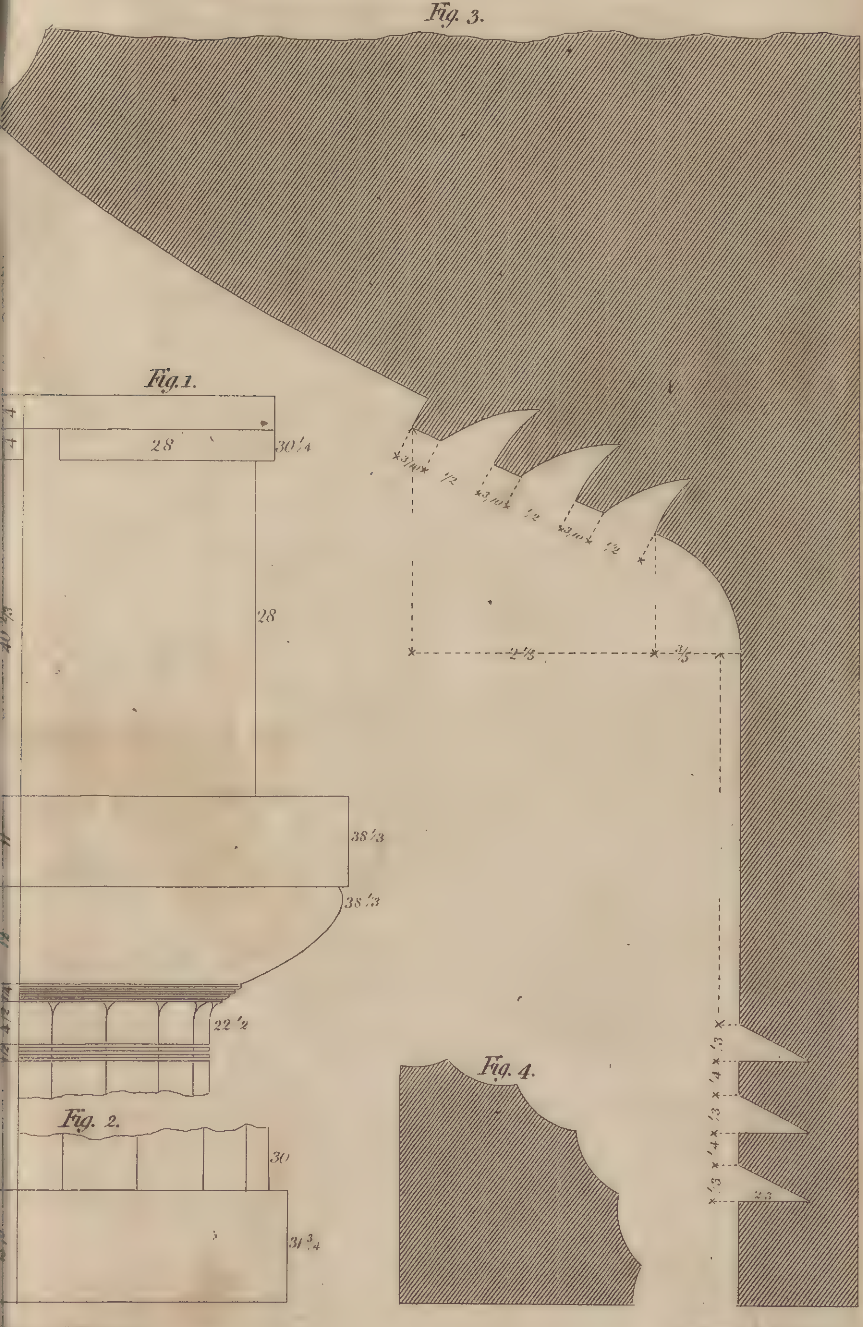
GRECIAN ARCHITECTURE.



rawn by P. Nicholson.

Engraved by W. Lowry

London, Published by P. Nicholson & C.o July 1797.

The grandeur and magnificence of this building was the boast of the Athenians. The height of the columns is eleven modules and twenty-four minutes; the echinus is very flat, as in the temple of Theseus.

PLATE 134.

Fig. 1. Half of the capital to a larger size.

Fig. 2. Proportion of the echinus in numbers.

Fig. 3. A section of the annulets to a size still greater.

EXAMPLE IV. PLATE 135.

Elevation of the Remains of the Doric Order on the Temple of Corinth.

The shortness of the columns, and the great height and form of the architrave, clearly evince their antiquity. The proportions of those columns, and form of the capitals, are nearly similar to these at Pœstum; the graceful form of the echinus, and its great projection, has a very striking and grand appearance.

PLATE 136.

Fig. 1. The proportion of the parts and mouldings of the Doric order on the temple at Corinth.

Fig. 2. Elevation of the bottom of the column, and the step on which it rests.

Fig. 3.

Fig. 3. A section of a part of the capital, showing a part of the annulets. The heights of the columns of this temple, are eight modules and four minutes.

Fig. 4. The ichnography or plan of the one quarter of the columns.

EXAMPLE V. PLATE 137.

Elevation of the Doric Order, on the Doric Portico, at Athens.

This example of the Doric order is built of white marble, and is of a much later date than any of the preceding examples; as some inscriptions on this portico clearly prove that it was built in the time when Nicius was archon; and Eucles, the son of Herod, had the care of the work.

PLATE 138.

Fig. 1. The proportion of the members of the elevation, figured.

Fig. 2. Soffit of the mutules and corona, inverted.

Fig. 3. The ichnography of a quarter of the column at the bottom, shewing the flutes.

The height of the columns is twelve modules and two minutes and a half.

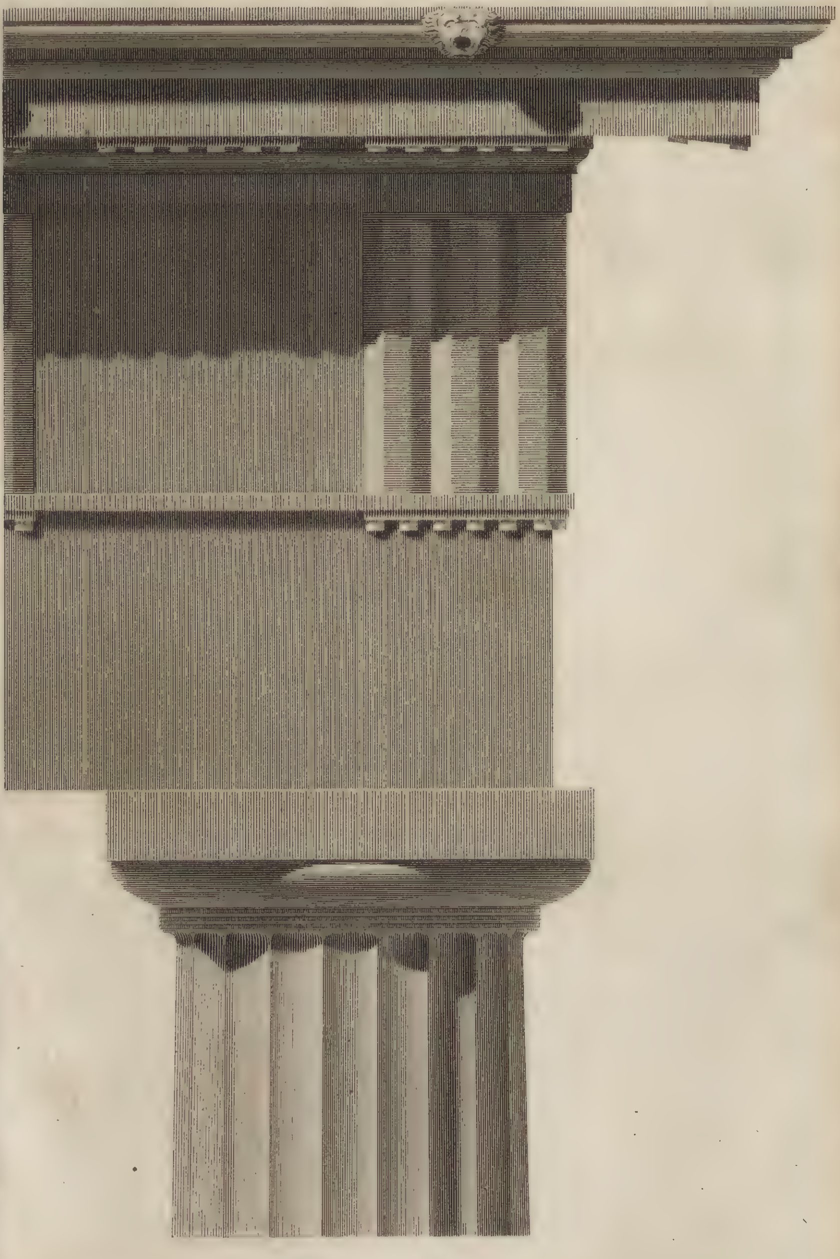
PLATE 139.

Fig. 1. Profile of the capital to a large size, showing the manner of drawing the echinus.

Fig. 2.

GRECIAN ARCHITECTURE

From the Doric Portico at Athens.



Drawn by P. Nicholson

Engraved by W. Lowry

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Pl. 138.

GRECIAN ARCHITECTURE
From the Doric Portico at Athens

Fig. 1.

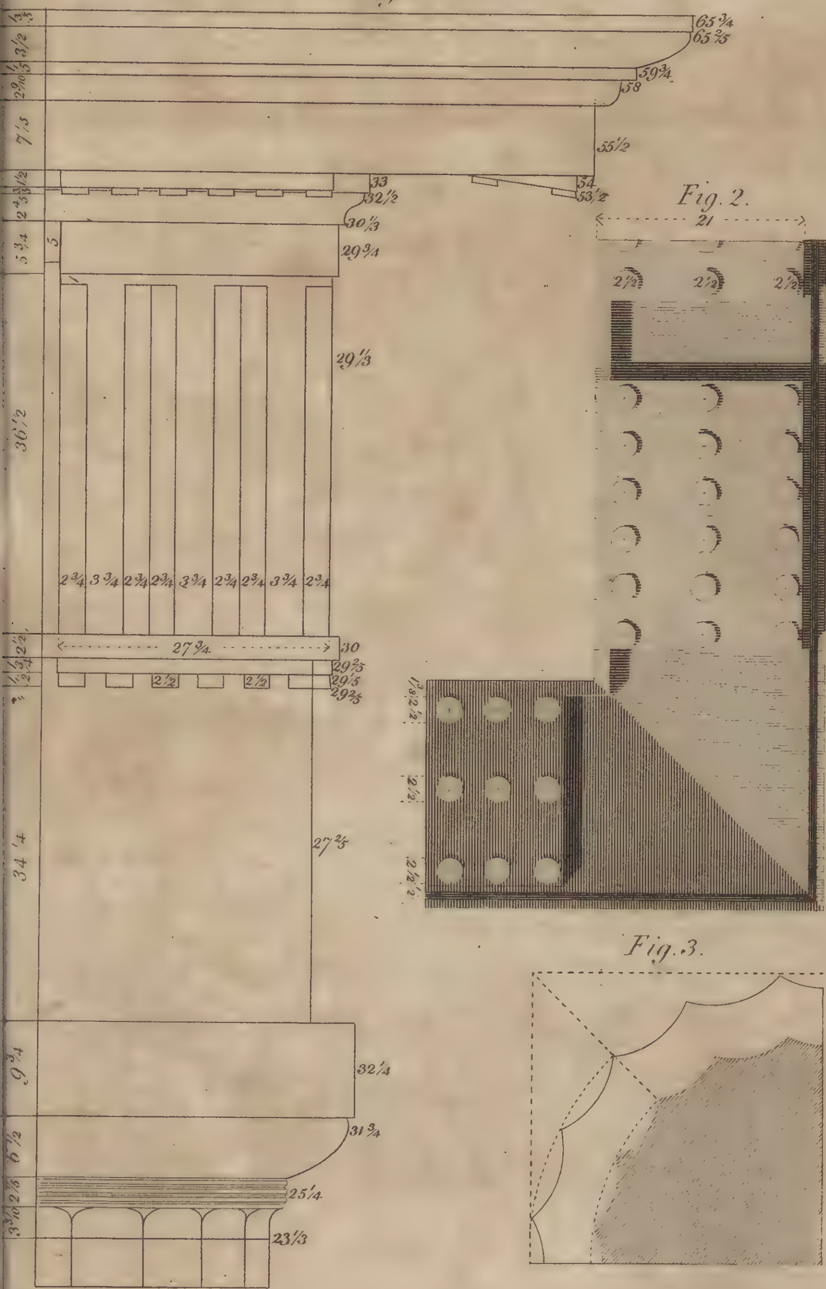

Fig. 2.

Fig. 3.

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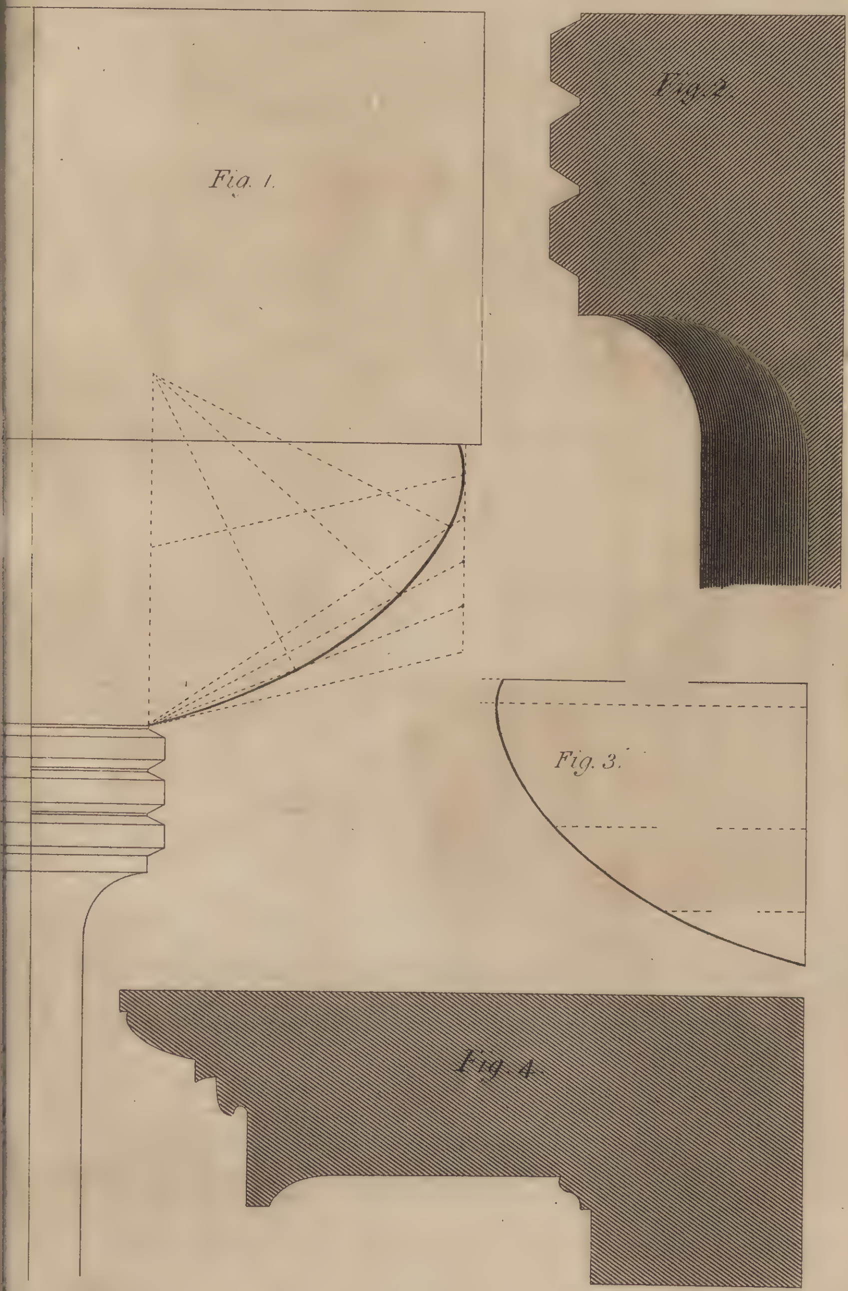
GRECIAN ARCHITECTURE

From the Doric Portico at Athens.



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GRECIAN ARCHITECTURE

Fig. 1

Fig. 2

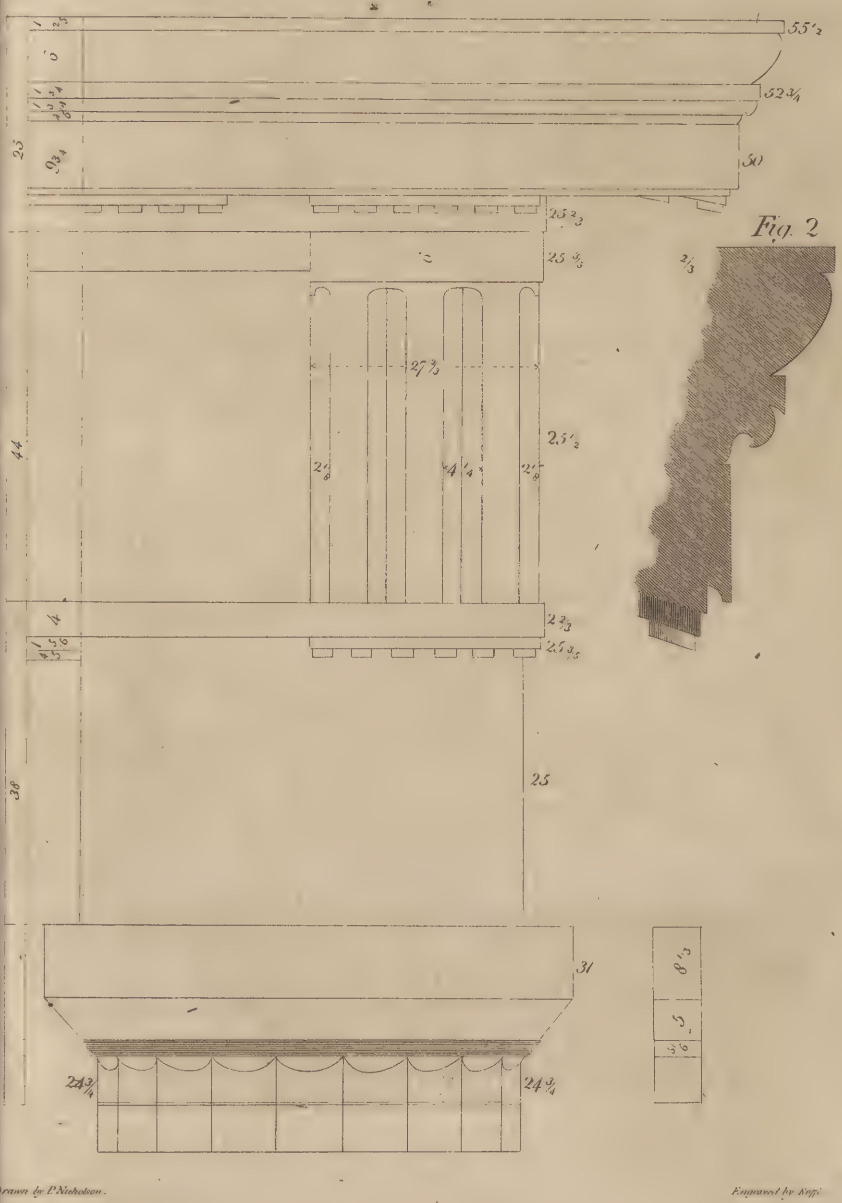

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Fig. 2. A vertical section of the annulets through the middle of a flute, showing how the flutes are finished under the annulets.

Fig. 3. Showing the curve of the echinus, and the manner of tracing it through the cornice of the pediment.

EXAMPLE VI. Plate 140.

Elevation of a Grecian Doric, of a lighter Proportion than any of the preceding, with the proportional Measures in Numbers.

The ratio of the parts of this elevation, is the same as that on the portico of Philip, King of Macedon, in the island of Delos; but the profile of the cornice differs as follows:—Instead of the ovolo, which I have introduced in this example, a cima-recta, in the original, occupies its place; and, instead of the next ovolo under the fillet in this, there is in the original a cima-reversa. The profile shown in this plate, I conceive to be more beautiful than the original; as it will produce a greater variety of light and shade, and consequently the mouldings will be more clearly defined: but as the reader may be desirous of knowing the true form and taste of the original mouldings, I have shown them by a section in the next plate.

Fig. 1. Elevation, with the proportional measures in numbers.

Fig. 2. A section through the upper part of the cornice, showing the form and taste of the mouldings introduced in this elevation.

All the other parts of this profile are the same as that of Philip's portico. The height of the column of this example, is thirteen modules two minutes and a half; the echinus differs in its form from any of the preceding examples, being the frustum of a cone.

Plate 141.

Fig. 1. A section through the cornice.
Fig. 2. Part of the capital to a larger size.
Fig. 3. Section of the annulets in the capital.
Fig. 4. A section of the antæ on the same portico.

EXAMPLE VII. Plate 142.

Elevation of the Doric Order on one of the Temples at Pœstum, in Italy.

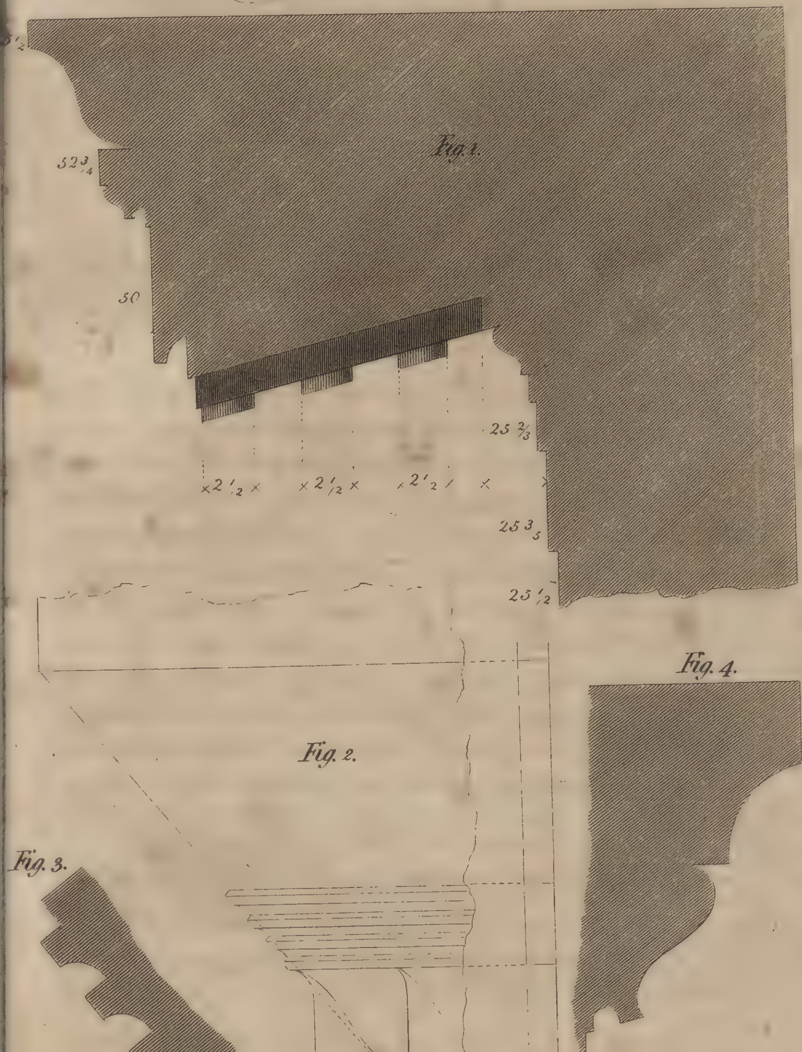
As these temples have never been accurately measured, it is doubtful whether the form and proportion of the parts are correct; for which reason I shall omit giving their proportions in numbers. This example is from the authority of Major's Ruins of Pœstum; the style and character of the mouldings, and the proportion of the parts to one another, show them to be Greek examples. The date of these temples cannot be accurately ascertained; but they appear to be very antient, and to have been built by a Grecian colony: the proportion of the columns, and their diminution, are nearly similar to those of the temple of Corinth.

EXAMPLE VIII. Plate 143.

Elevation of another Doric Order found in Asia, near the Temple of Minerva Polias, with the Proportions in Numbers.

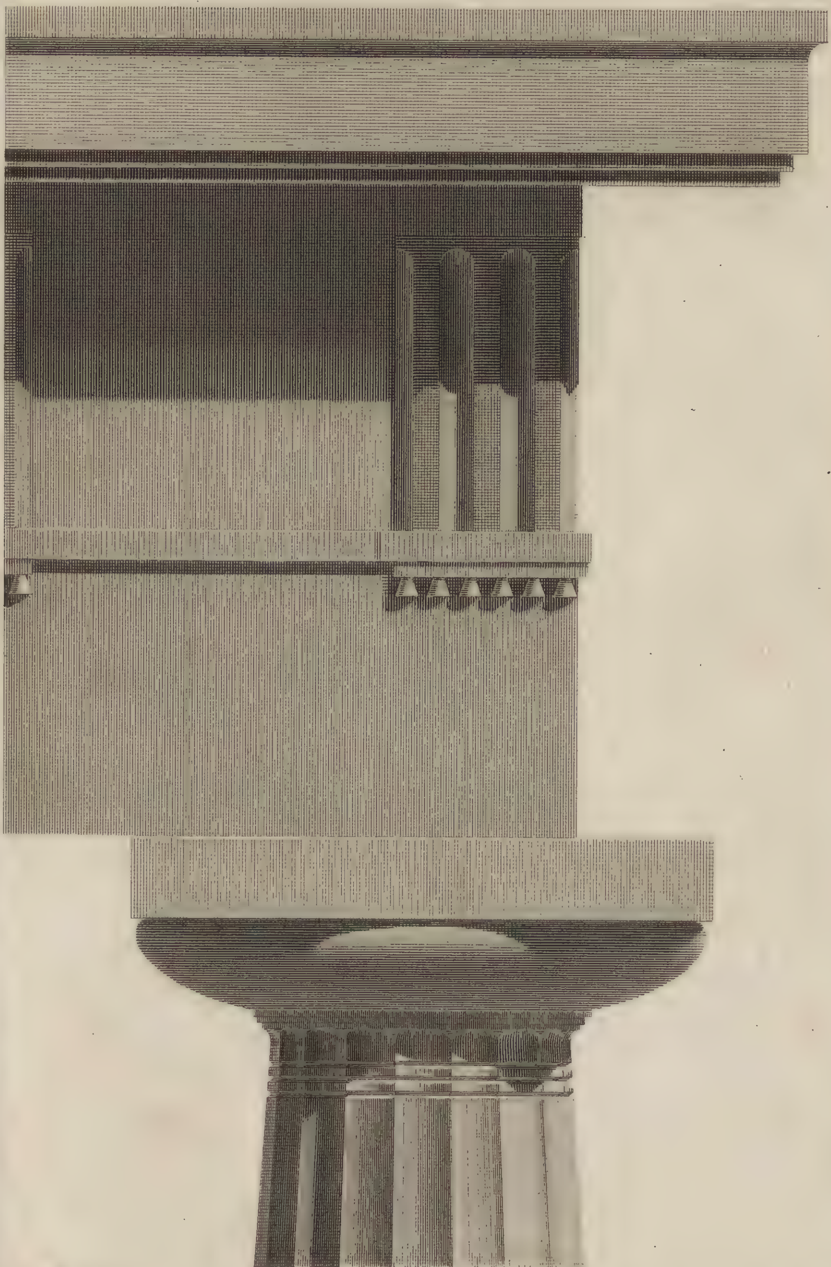
The projecture of the mouldings in this example, are much flatter than those of the Athenian Dorics. The

GRECIAN ARCHITECTURE
From the Portico of Philip King of Macedon



Drawn by P. Nicholson. Engraved by Roffe

GRECIAN ARCHITECTURE.



...awn by P. Nicholson

Engraved by W. Lowry.

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GRECIAN ARCHITECTURE

Fig. 1.

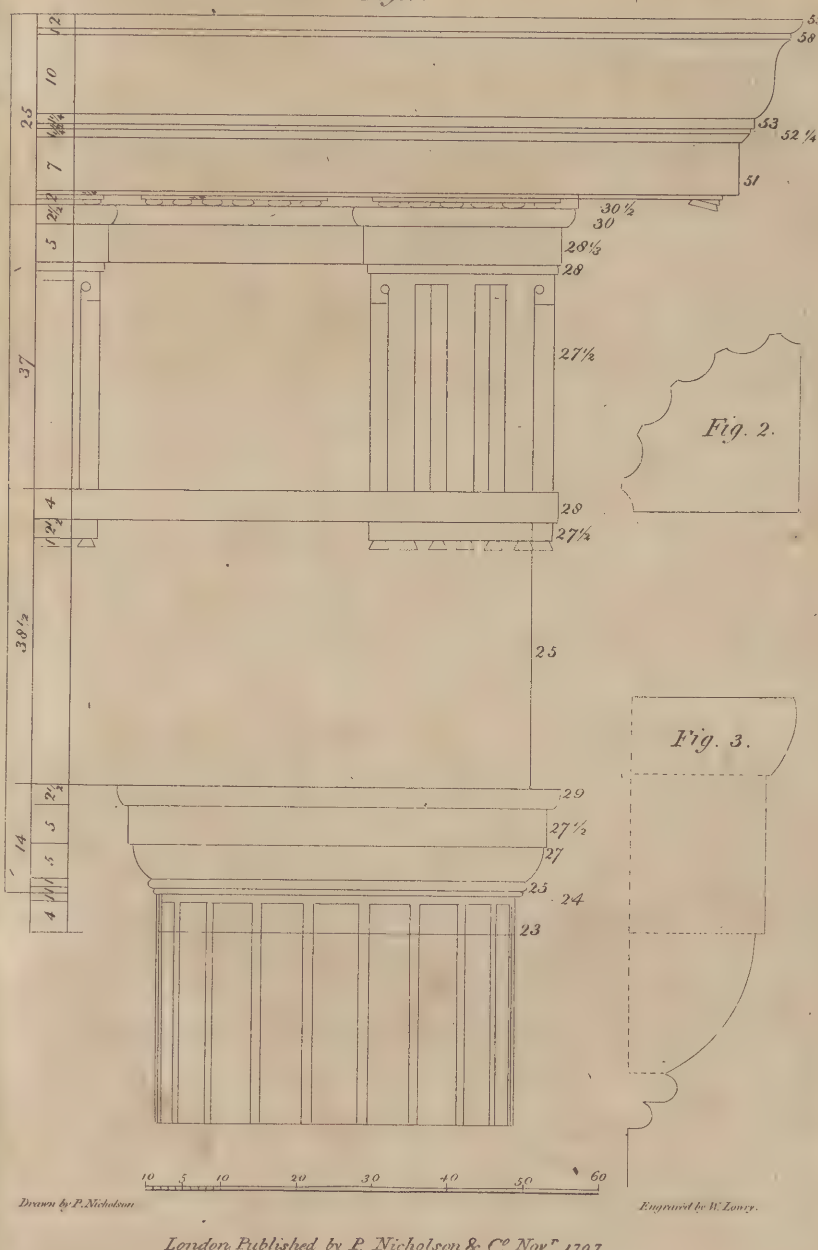

Fig. 2.

Fig. 3.

Drawn by P. Nicholson

Engraved by W. Lowry.

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The height of the cima-recta, or upper moulding, has also a greater ratio to the height of any of the other mouldings in the cornice, than is in any of the preceding Grecian examples.

The capital approaches to the form of a Roman doric; instead of a plain abacus, it is crowned with a doric cimatium, which does not correspond with any other Greek example; the contour of the ovolo, or echinus, below the abacus, is part of a circle, and not a part of an ellipsis, or some other conic section, as are almost every other Grecian moulding.

The annulets under the echinus are singular, being two astragals coupled together: they are not to be found so in any other Grecian or Roman example.

The flutes of this column are not of the Doric kind, but more properly belong to the Ionic and Corinthian Orders.

The Doric cymatium over the capital of the triglyphs, also varies from the other Grecian Dorics; as may be seen by the foregoing examples.

In the Doric portico at Athens, and in the portico of Philip, King of Macedon, a cima-reversa occupies the place of the echinus; but in most of the other Greek examples a plain facia is introduced in the place of the echinus of this example.

Fig. 1. Elevation of the entablature, with part of the column.

Fig. 2. Section of the mouldings in the capital to four times the size of fig. 1.

Fig. 3. One quarter of the ichnography of the columns.

THE

ROMAN DORIC ORDER,

AND

ITS PROPORTION,

*ACCORDING TO VITRUVIUS**.

SOME antient architects have maintained, that the Doric Order is unfit for sacred edifices, by reason of its irregularity. This opinion was held by Tarchesius, Pytheus, and Hermogenes; the latter, after having prepared marble materials for building a Doric temple, changed the order and made it Ionic, dedicating it to Bacchus. The Doric Order, however, is not deficient in grandeur; but an inconvenience arises in the distribution of the triglyphs aud lacunaria: for it is neces-

sary

* Book IV. Chap. III.

sary that the triglyphs should be placed over the middle quarters of the columns, and the metopes which are between the triglyphs must be as long as high; also, the triglyphs at the angles are placed at the extremities, and not over the middle of the columns; therefore the metopes which are next the angular triglyphs will not be square, but longer by half the breadth of a triglyph: some, who wish to make the metopes equal, lessen the extreme intercolumniation by half the breadth of the triglyph. However, the lengthening of the metope, or the contracting of the intercolumniation, is a defect. Though the antients have been observed to neglect exact regularity in Doric buildings, I shall show, in its proper place, how far we ought to follow our masters: so that if any one should wish to know the best manner, he will have the proportions explained; and then he will learn to construct sacred buildings in the Doric manner, without fault or imperfection.

The front of a Doric temple, where the columns are placed, is divided,—if it be tetrastyle, into twenty-eight parts; if hexastyle, into forty-four. One of these parts will be the module, which in Greek is called Embatès, and by which all the other parts are proportioned.

The thickness of the column must be two modules; the height, with the capital, fourteen; the height of the capital one module, the breadth two modules and a sixth. The height of the capital is divided into three parts, of which one is given to the abacus, with the cimatium; another to the echinus, with the annulets; and the third to the hypotrachelion. The

columns

columns are diminished, as described in the third book on the Ionic Order.

The height of the epistilium, with the tenia and drops, is one module. The tenia has the seventh of a module, the length of the guttæ under the tenia coinciding with the perpendicular of the triglyphs—their height, with the regula, is one sixth of a module; the breadth of the epistylium also answers to the hypotrachelion of the column.

On the epistylium are placed the triglyphs with the metopes, having the height of one module and a half, and the breadth in front one module; they must be so distributed, that they may be over the centre of the columns at the angles, and two between each column. The breadth of the triglyphs is divided into six parts, of which five parts are in the middle, and half a part on the right and left*; the middle part makes the regula or femur which the Greeks call Meros. On either

* This would have been better expressed as follows: divide the breadth of the triglyph into twelve equal parts, of which the breadth of the femur in the middle will be two parts; then a channel is cut on each side of the femur, the breadth of each channel being equal to two parts; next to the channels two other femura are left, one on the right, and the other on the left, each equal to the breadth of the middle femur, or two parts; then a part will remain next to the edge of each triglyph, which is to be cut away in the form of a semi-channel.

This part is wrong translated in Newton's Vitruvius: he says,

"The breadth of the triglyph is divided into six parts, "of which five are placed in the middle, and two and a "half on either side."

This is a contradiction; for five in the middle, and two and a half on each side, would make ten.

either side of this, channels are sunk, as if imprinted by the elbow of a square; to the right and left of these another femur is formed. In the same manner semi-channels must be sunk at the extremities. The triglyphs being thus disposed, the metopes are as high as long; on the angles also the semi-metopes are made half a module in width.

Thus all the errors arising from the wrong distribution of the metopes, intercolumniations, and lacunaria, will be rectified.

The capitals of the triglyphs must have one sixth of a module. On these capitals is placed the corona, projecting a half and a sixth part of a module, having a Doric cymatium below and another above; the corona, with the cymatiums, are half a module in thickness. In the under part of the corona, perpendicularly over the triglyphs and metopes, the guttæ are so distributed, that there may be six in length, and three in breadth. The spaces between the metopes, being rather broader than the triglyphs, are either left plain, or carved with thunderbolts, and at the edge of the corona a channel is cut called Scotia; all the remainder, as the tympanum, the sima, and corona, are the same as in the Ionic Order.

Concerning the diminution of the column according to Vitruvius, he gives the following rule* for all kinds of columns, the Tuscan excepted.

" The diminution of the top of the column at the " hypotrachelion, is thus regulated: If the column be " not

* Chap. II. Book III. *Newton's Vitruvius.*

" not less than fifteen feet high, the thickness at bot-
" tom is divided into six parts, and five of these parts
" are given to the thickness at top.

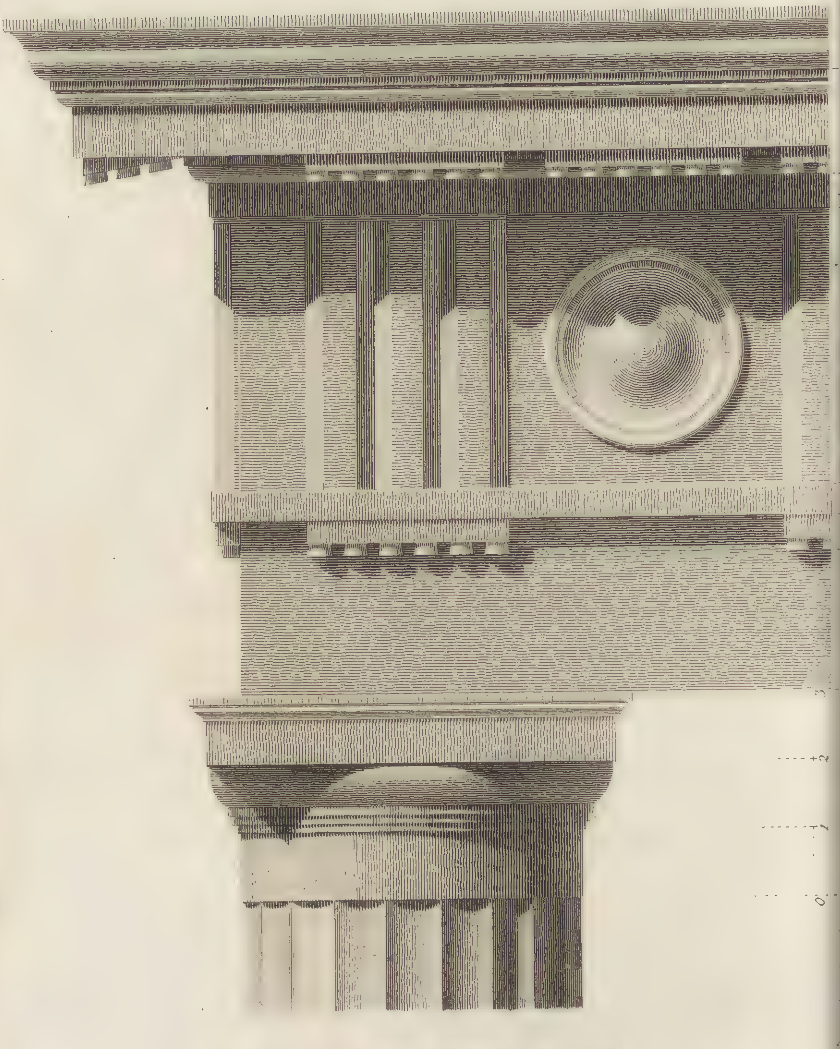
" If the height is from fifteen to twenty feet, the
" bottom of the shaft is divided into six parts and a
" half, and five and a half of these parts make the
" thickness of the column at top; and if from twenty
" to thirty feet, the bottom is divided into seven parts,
" and six of these make the diminution at the top.
" If it is from thirty to forty feet high, the bottom
" thickness is divided into seven parts and a half, of
" which six and a half is the measure of the diminu-
" tion at the top. If from forty to fifty feet, it is di-
" vided into eight parts, whereof seven will make the
" thickness of the hypotrachelion at the top of the
" shaft.

" And if it is still higher, the same proportional
" method is observed; for as a greater height causes
" them to appear more diminished, they are therefore
" to be corrected by an addition of thickness; beauty
" being the province of the eye, which, if not satis-
" fied by the due proportion and augmentation of the
" members correcting apparent deficiencies, with pro-
" per additions, the aspect will appear coarse and
" displeasing.

" Concerning the augmentation which is made in
" the middle of columns, which the Greeks call en-
" tasis, the manner of forming it just and gradual is
" shown at the end of the book."

ROMAN ARCHITECTURE

From Vitruvius



Drawn by P. Nicholson.

Engraved W. Lowry

London Published by P. Nicholson & C.o July 1797

EXAMPLE I. Plate 144.

Elevation of the Doric Order, according to the Principles of Vitruvius.

The proportion of the cornice of this example, and distributions of the mutules, is in the Grecian style; but the triglyph being placed directly over the middle of the angular column, is in the Roman style; the height of the architrave is much too low for the height of the frize, as it is the principal beam and support of the frize and cornice above it. The proportion of the capital is poor and flat, which follows in consequence from the Vitruvian manner of diminishing columns, and from the breadth of the abacus, being only two modules and one sixth; but if the mouldings in the capital of this example, which answers only to a column of fifteen feet high, are so very flat, how much more so must they be when the height of the column is fifty feet.*

* It is evident, that if this rule were to be applied to columns still higher, the mouldings in the capital would be so exceeding flat, as to approach nearly a right line; which would not agree with his words, where he says, in Book III. Chap. III: "That all mouldings in general will have the best effect when "their projectures are made equal to their heights."

Another

EXAMPLE II. Plate 145.

Elevation of the Doric Order, as executed on the Theatre of Marcellus, at Rome.

This example, though executed in the age of Augustus, is not a sufficient model for restoring the Doric order. The upper part of the cornice, from the soffit of

Another consequence would also follow from the application of this rule, that it would be absolutely impossible to execute one object or building similar to another, unless they were of equal magnitudes.

It does not appear from Vitruvius, that he has considered, that the same distance of the eye which any object may be viewed at, is by no means suitable for one of a greater or less magnitude: for a building of a greater magnitude would require the eye to be at a greater distance, and a building of a less magnitude would require the eye to be at a less distance from it; and to produce similar images in the eye, by viewing different objects or buildings, would require these objects to be similarly constructed, and the point of view so taken for each object, that the distance of the eye may be respectively as their corresponding sides or dimensions, and the eye alike situated to each; then similar pyramids of rays will be conveyed from each object to their respective points of view, and therefore will also produce similar images on the retina of each respective eye.

I see no reason why the same quantity of diminution may not be applied to columns of every dimension.

However,

ROMAN ARCHITECTURE

From the Theatre of Marcellus at Rome.

Drawn by P. Nicholson. *Engraved by J. Roffe.*

London, Published Sept. 1796, by P. Nicholson & C°.

of the corona to the top, is at present entirely destroyed; the profile of this part is restored according to Mon. de Chambray; the cavetto, which is the upper member, is not so beautiful as an ovolo; it contains too great a quantity of shade; whereas the degrees of

 shade

However, in executing public buildings of magnitude, and in case such building was to be exposed to view, and could be seen from a great distance, it would then be necessary to enlarge the parts of the order, beyond the proportion of the parts of the same order which would be executed on a building of a less magnitude, so that they may appear to the best advantage at a distance from the object.

The antients seem to have had such a rule in view, as appears from antique buildings now remaining. In the great temple of Minerva at Athens, the parts are bold and massy; a circumstance that strikes the mind of the spectator at a distance, with the grandeur and elegant proportion of its parts, which are not exceeded by any other building in existence; such is also the case in the gigantic Doric order on one of the temples at Pœstum. The parts are few in number, but have a striking effect at a distance.

In smaller buildings, such as the Doric portico, and the temple of Theseus at Athens, the parts of the order are small and well relieved, which makes them sufficiently seen at a small distance. Indeed, if a number of small mouldings were executed on large buildings, they would appear so much diminished, when compared with the magnitude of the object, that the whole would seem like a mass of confusion.

Under such circumstances, it may be necessary to make such a difference in the execution of the parts of buildings, without making any allowance in the diminution of columns; but, notwithstanding what has now been said, the reader must not think that he can have a certain and invariable rule for the diminution of columns, so as to make the upper diameter a certain part of the lower diameter; for it is almost beyond the power of reason to demonstrate that it shall be in any given ratio; this must entirely depend on the judgment

shade on the ovolo will be softened or melted into the light, which will produce a beautiful variety of light and shade on its surface.

The dentels in the cornice do not by any means correspond with the Herculean character of this order; nor is there any precedent for them in any of the celebrated and more antient edifices now remaining in Greece. The height and projection of the cornice renders it too ponderous for the height of the architrave, which supports the whole entablature.

The principal character of this cornice, viz. the mutules and their guttæ, which ought to be as conspicuous

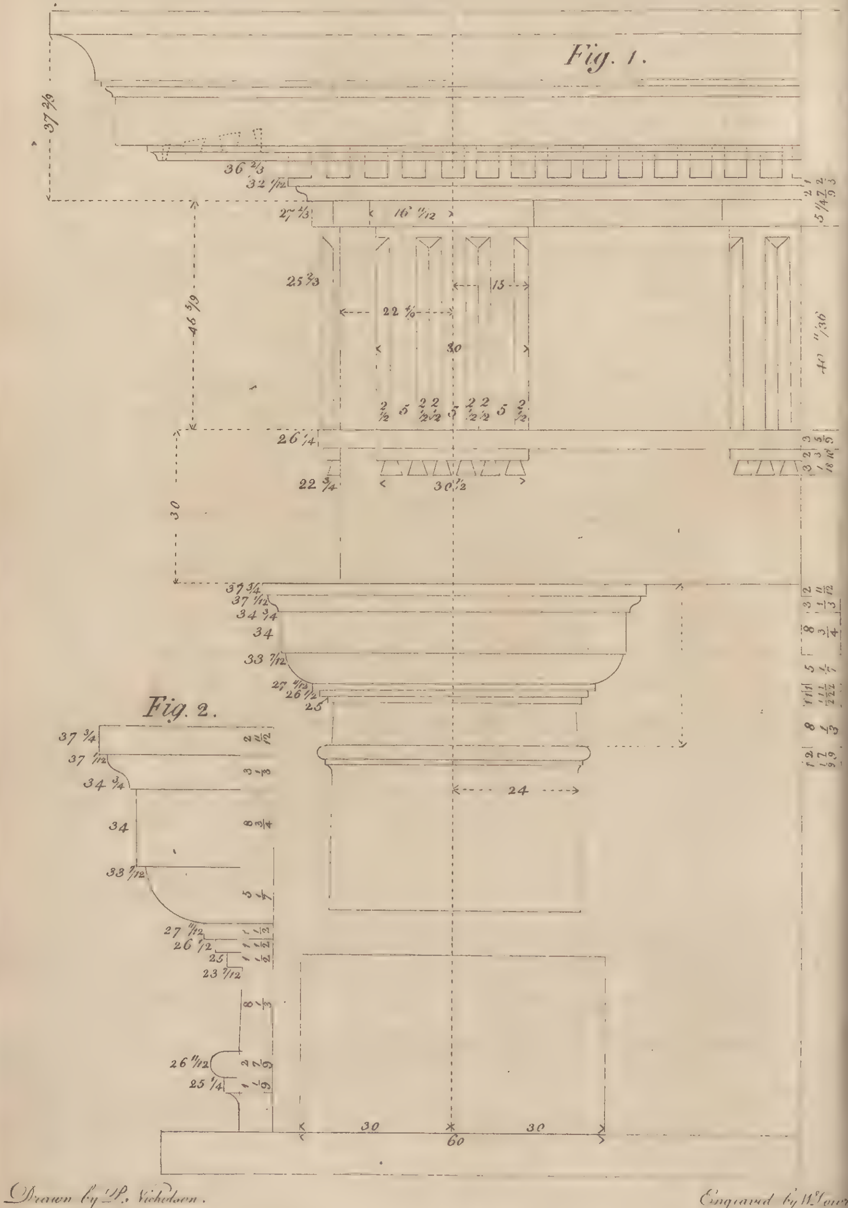
judgment of the architect; nor does it appear, from the remains of antiquity, that the antients ever adhered closely to any rule, as we find the quantity of diminution vary in different buildings.

The columns of the temple at Corinth diminish one quarter of their diameter exactly.

The diminution of the columns of the Doric portico at Athens, and of the temple of Minerva and Theseus at the same place, is between one quarter and one fifth of their diameter, but are nearer to one fifth than a quarter; so that to establish a rule, which would be a mean, according to the practice of the antients, would be to make the upper diameter in Doric buildings seven ninths of the lower diameter. But these celebrated buildings do not confirm the Vitruvian rule; for the height of the columns of the temple of Theseus are not quite nineteen feet, and those of the temple of Minerva are above thirty-four; the former of these diminishes thirteen minutes, and the latter thirteen and one fifth, which ought to be less than the former, and is therefore quite contrary to that which the Vitruvian method would give.

ROMAN ARCHITECTURE

From the Theatre of Marcellus at Rome.



Drawn by P. Nicholson.

Engraved by W. Lowry

London. Published Octr. 1796, by P. Nicholson & Co.

spicuous in the elevation as any other members in the cornice, are entirely hidden by a continued cavetto on their fronts; and as the soffit of the corona on which the mutules and guttæ are hung, is very much inclined, it is therefore impossible that they can be seen to advantage, unless the eye be almost under the building.

The disposition and proportion of the metopes and triglyphs in the frize, and the epistilium or architrave, are according to the description of Vitruvius, which I have already taken notice of.

The members of the capital are of the same kind, and disposed in the same manner, as those in the Vitruvian capital; but the proportion of the heights, and projections of the latter, do not correspond with those of the former:

Although this example has in general been esteemed one of the most perfect models of the Doric order, the restoration of the Grecian Doric will convince us to the contrary: the parts are too much multiplied, and the columns are too slender; which makes the order appear trifling and confused at a distance.

Plate 146.

The Proportion of the Parts in Numbers.

Fig. 1. Outline of the preceding plate, with the heights and projections of the members.

Fig. 2.

Fig. 2. A profile of the moulding in the capital, drawn to a larger scale.

Note, This column has no base; but the bottom of the shaft rests upon a step, the same as in the Grecian examples of this order.

Plate 147.

Fig. 1. Entablature to a larger scale, with a section through the upper part of the cornice, showing the contours of the mouldings and form of the drops.

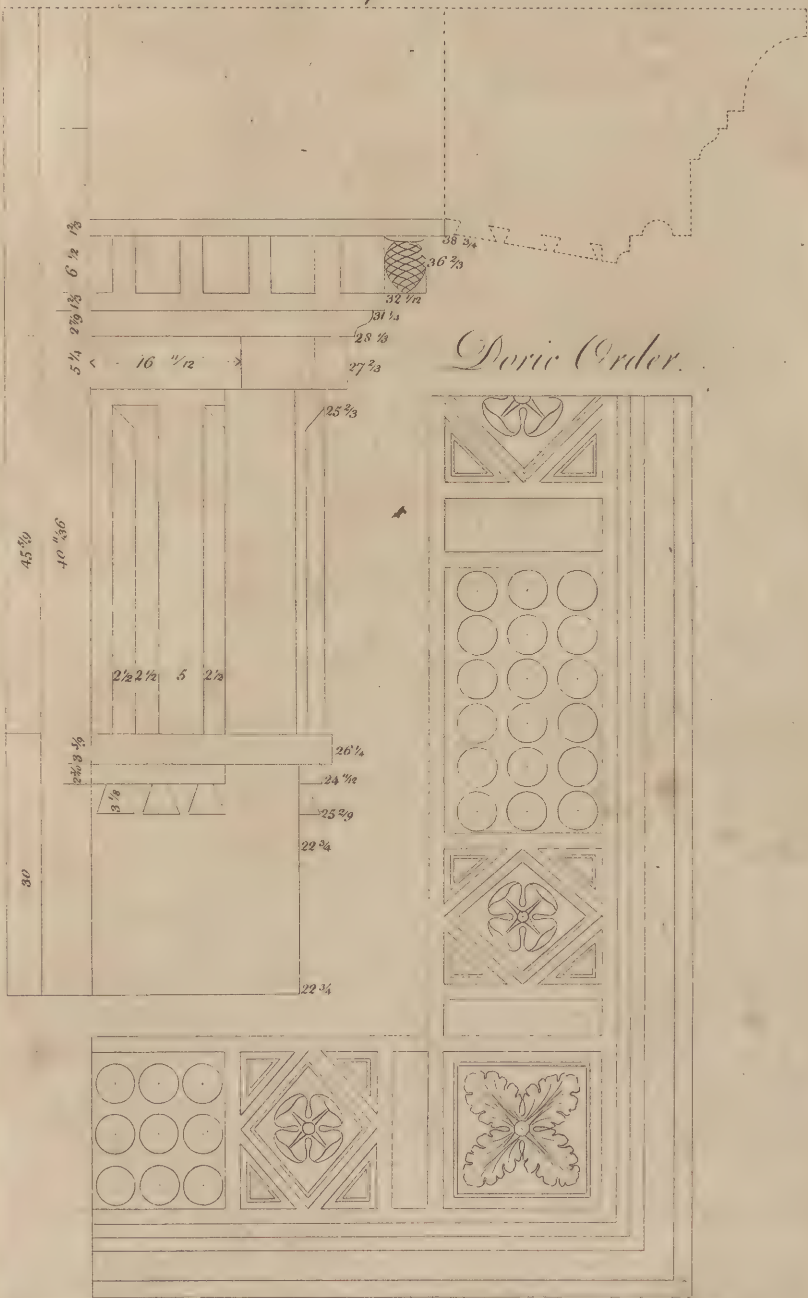
Fig. 2. The soffit of the cornice inverted, showing the coffers and the mutules, with the drops.

Vitruvius says, that the mutules ought to be placed exactly over every triglyph, and also over every metope; which is perfectly consistent with almost every example of the Grecian Doric now remaining at Athens and other parts of Greece, and also at Ionia and Pœstum in Italy; but in the present example, and all others of the Roman Doric, the mutules are always omitted over the metopes, and sometimes over the triglyphs, which deprives this order of one of its most principal characters, insomuch, that if the same cornice were executed over any other kind of columu, architrave, and frize, it would not be a Doric cornice.

Pl. 147.

ROMAN ARCHITECTURE

From the Theatre of Marcellus at Rome.



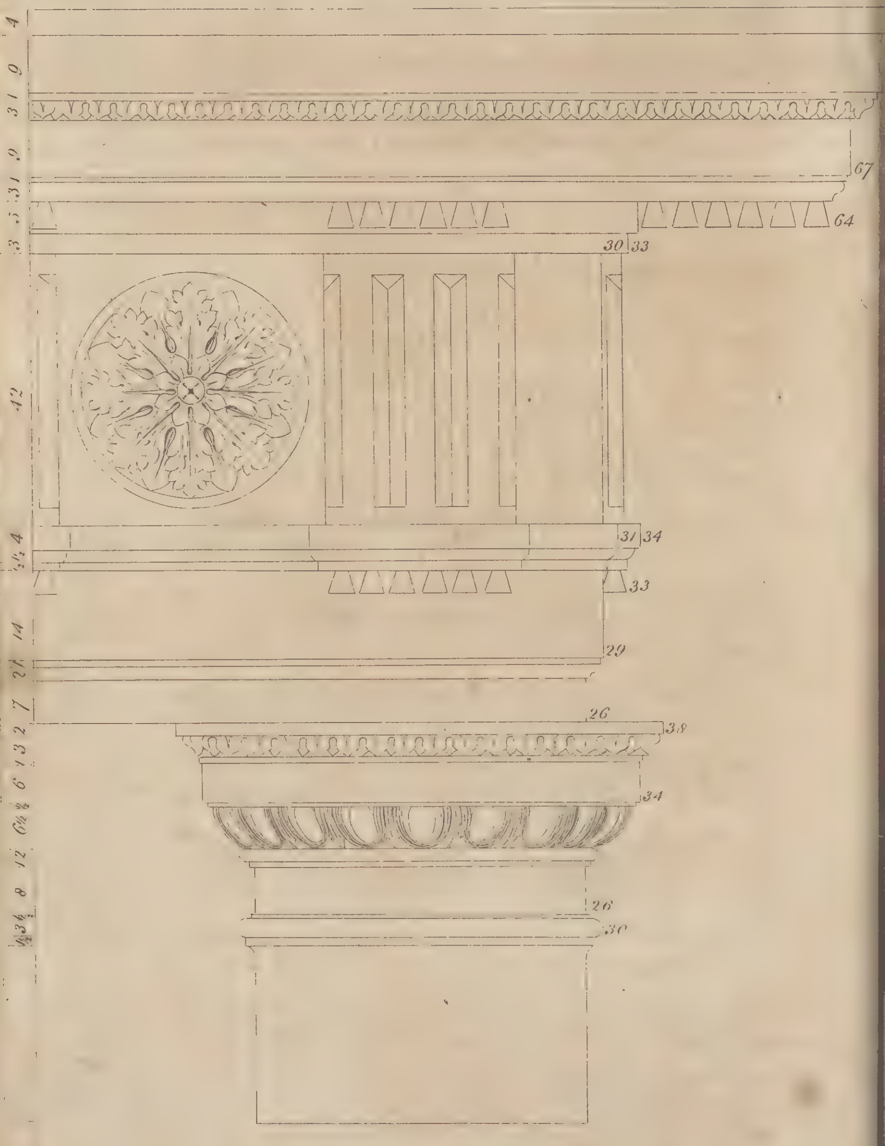
Doric Order.

Drawn by P. Nicholson. Engraved by W. Lowry

London, Published Oct.r 1796, by P. Nicholson & C.o

ROMAN ARCHITECTURE

From Albano near Rome.



Drawn by P. Nicholson.

Engraved by W

London. Published by P. N[illegible] & C^o. March, 1796.

EXAMPLE II. Plate 148.

Elevation of a Doric Order found at Albano, near Rome, with the Measures, in Numbers.

This Doric was discovered at Albano, joining the church of St. Mary, with some other curious antique fragments of architecture.

The upper members of the cornice above the corona, in this example, are the same as in the theatre of Marcellus, at Rome, on which I have already made some observations. Under the corona, and perpendicular to the triglyph, are placed mutules with drops, which agree better with the true character of the original Grecian Doric, than that of the theatre of Marcellus, above mentioned, where the ends of the mutule and drops are hid by the corona in that example. In this example, the drops under the mutules being six in width, as well as six in length, makes the projection of the corona unavoidably too great.

The capital of the triglyph, joining immediately to the facia, from which the mutules project, without having any other mouldings between them, has all the simplicity of the Grecian Doric; this cornice, upon the whole, is not a bad composition.

The disposition of the triglyphs and metopes in the frize are according to the rules of Vitruvius; the metope is enriched with pateræ.

The

The height of the architrave is nearly the same as that allowed by Vitruvius; but its being divided into too many parts, by mouldings, renders its profile confused, and not consistent with that simplicity which characterizes the genuine Grecian Doric.

The capital of the column of this example, differs from the description of Vitruvius as follows: There is a fillet under the cymatium, which is not in the Vitruvian capital; and, instead of the annulets which he describes, and which are the principal feature of the Doric capital, is placed an astragal, or bead and fillet.

The carving of the echinus with eggs and acorns, and the enriched cymatium round the abacus, destroys the simplicity which the capital ought to have.

The column has no base, but rests upon a step, as in the theatre of Marcellus.

Fig. 1. Entablature and capital of the column, with part of the shaft.

Fig. 2. The lower part of the shaft, showing the step on which it rests.

Plate 149.

The contents of Plate 148 shadowed.

ROMAN ARCHITECTURE

From Albano near Rome!

Drawn by P. Nicholson.

Engraved by Cosmo Armstrong

London Published by P. Nicholson & Co. Janr. 1798.

ROMAN ARCHITECTURE

From the Baths of Dioclesian.

London Published by P. Nicholson & Co. Feby. 1798.

EXAMPLE IV. Plate 150.

Elevation of the Doric Order, from the Baths of Dioclesian at Rome, with the Proportions in Numbers.

The cornice of this example is not Doric; it is too abundant with mouldings, and overcharged with enrichments.

The disposition of the triglyphs and metopes in the frize is according to the rules of Vitruvius.

The architrave has the same objections as the last example.

The capital is not Doric, but of another kind; nor could this composition be known to have the least resemblance of the Doric Order, if the triglyphs in the frize were omitted.

Elevation of the entablature and capital of the column, with part of the shaft.

The two last examples of this order are now entirely demolished; the drawings, according to Mons. de Chambray, were made by Pyrrho Ligorio, from some fragments of those buildings which remained in his time. For the first of these examples, viz. that on the Theatre of Marcellus, we have sufficient authority, as great remains of that building still exist: the proportions here given are from Mons. Desgodetz, who has

been universally allowed to be more accurate in his dimensions than any other person that has measured the Roman buildings.

PLATE 151.

The contents of Plate 150 shadowed.

EXAMPLE V. PLATE 152.

Elevation of the Entablature and Base of the Doric Order, on the Temple of Apollo, at Cora.

This is a singular example; it is neither pure Greek nor Roman architecture, but a mixture of both.

The great cavetto, which is the upper member of the cornice, is not in the Grecian style, but in the Roman.

The small cavetto under it does not relieve it sufficiently from the corona.

The corona is massy and bold, but not too deep, when compared with the cavetto or crown moulding above. On the corona are hung three continued rows of guttæ, each row parallel to the front; the soffit of the corona on which the mutules are hung, is not inclined, as is to be found in all Grecian and Roman examples; for which reason, the guttæ or drops will be better seen at a distance. Behind the guttæ is cut a groove, parallel to the front of the corona, which will cause a deep line of relief between the guttæ and the cavetto, at the back of the cornice; this cornice upon the whole is a mixture of Greek and Roman, the guttæ

under

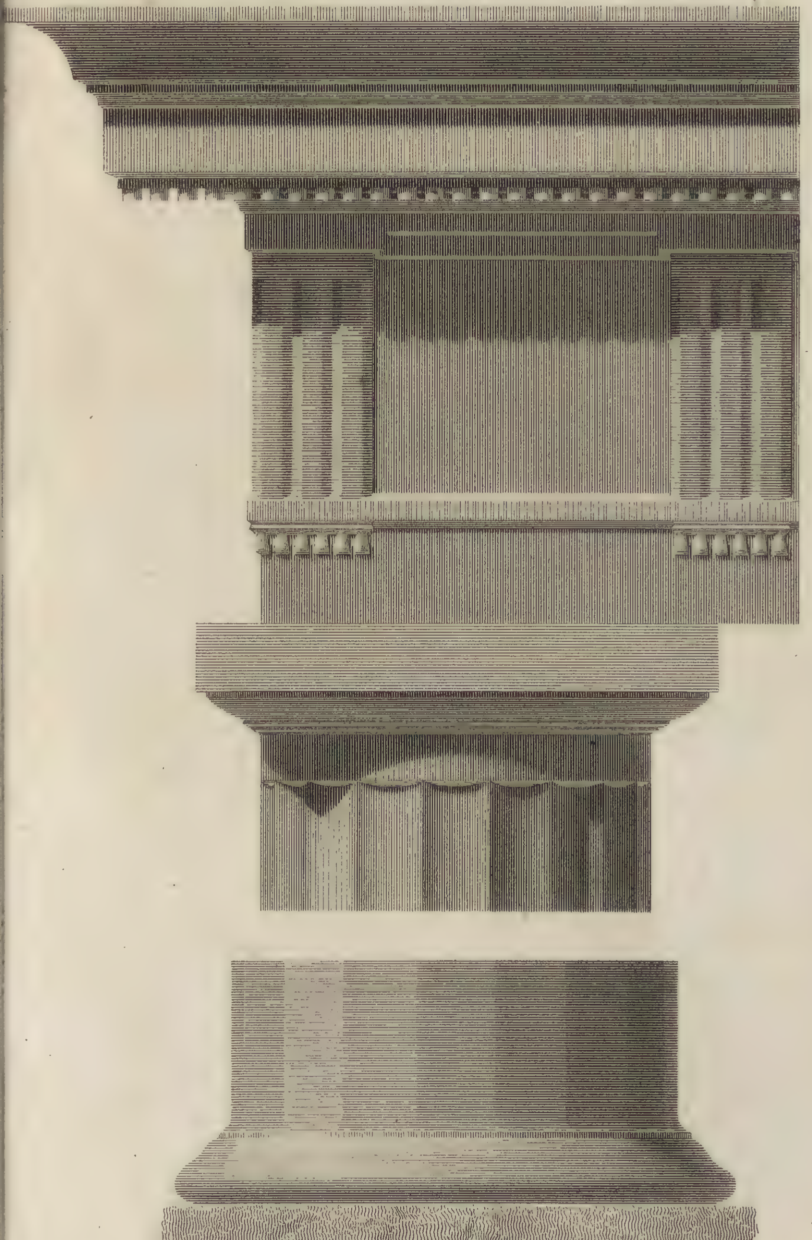
ROMAN ARCHITECTURE

From the Baths of Dioclesian at Rome

by P. Nicholson. Engraved by W. Lowry

London Published by P. Nicholson & C.o Nov.r 1797.

From the Temple of Apollo at Cora.



Drawn by P. Nicholson. Engraved by W. Lowry.

London, Published Mar. 1797, by P. Nicholson & Co.

under the corona have a nearer affinity to the Greek style than the Roman.

The frize is constructed in the Grecian manner, for the triglyph is placed at the extremity.

The architrave resembles the Roman more than the Greek, and its height is even much less than any Roman example; it is not a third part of the diameter of the column. The guttæ are longer in proportion to their height, and are more conical than are to be found in Grecian examples, but are nearly similar to those in Roman buildings.

The upper part of the column is constructed in the Grecian manner; for the abacus is plain, and the echinus deeply relieved; which makes a beautiful separation between the echinus and hypotrachelion of the capital; but the hypotrachelion is more like the Roman than the Greek; for in all the Roman examples the hypotrachelion is plain; but in the Greek examples the fluting of the column is continued through the hypotrachelion, and terminates immediately under the lower annulet.

The column of this example has a base, which is not to be found in any other example of the Doric order, either in Grecian or Roman antiquity; but the great height of the columns requires it, in order that they may stand firmly on their bases, as they are eight diameters and three quarters high; the column at the bottom is polygonal nearly to one third of its height: and from thence are fluted upwards, as in the portico of Philip, King of Macedon.

This example, upon the whole, is more like the Greek than the Roman.

The triglyphs in the frize are much too narrow for their height, and for the diameter of the column.

If the architrave had been twice its height, the entablature would have been better proportioned to the cornice and frize which it supports.

The under sides of the fillets and projectures being inclined or chamfered, makes them visible to the eye at a distance, and renders the object apparently more solid.

Plate 153.

Sections and Elevations of different Parts of the foregoing Example, to one Quarter of the real Size, as it is in the Original.

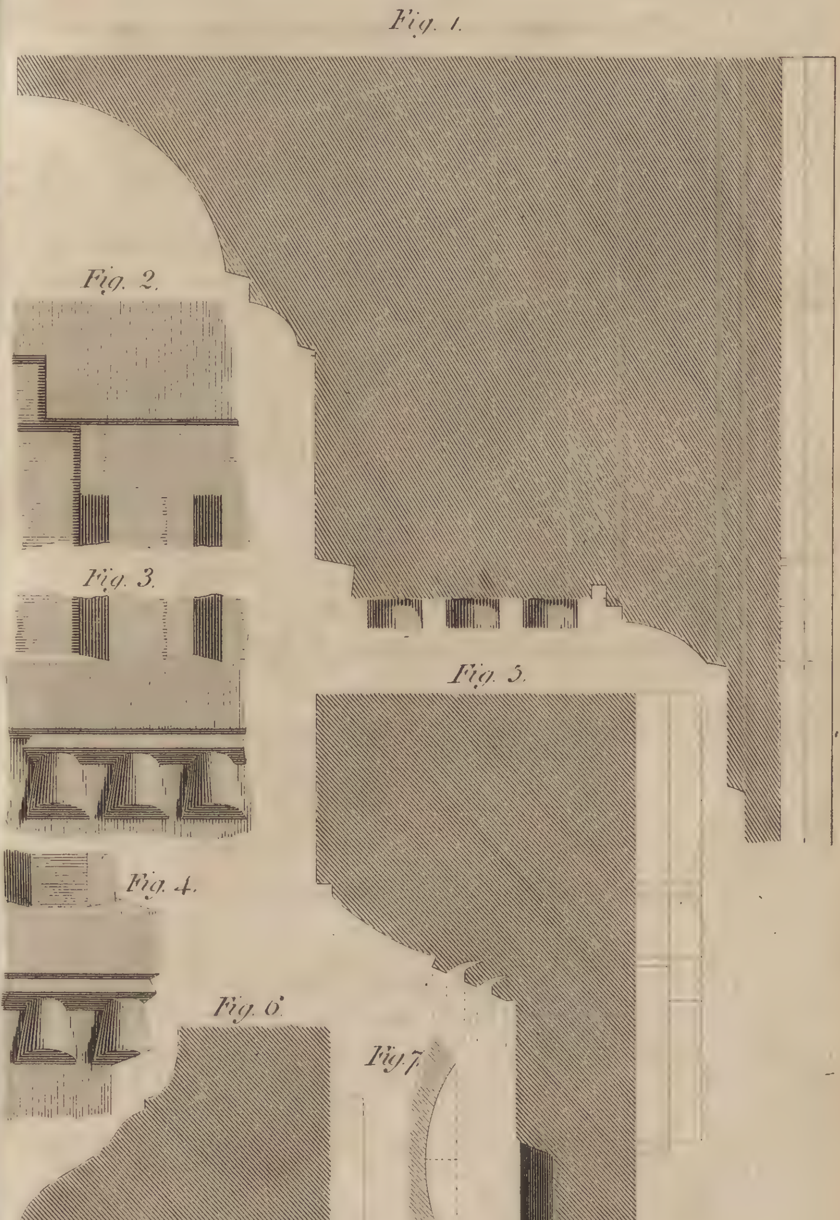
Fig. 1. A section through the cornice, showing the inclination of the under sides of the fillets.

Fig. 2. Part of a triglyph and metope.

Fig. 3. Elevation of part of the bottom of the triglyph and metope, with a part of the teniæ, regula, and three of the guttæ; showing how far the ends of the regula and guttæ exceed the breadth of the triglyph*: this

* I must here observe a mistake in the finished plate: the regula and guttæ are there represented as if their ends were in

From the Temple of Apollo at Cora



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this is a singularity which is not to be found in any of the Greek or Roman examples of this order.

Fig. 4. Another part of the triglyph; showing the termination of the angle of the building, and also the finish of the angular guttæ.

Fig. 5. A section through the capital, and through the middle of a flute of the column; showing the cutting or sinking of the annulets, and the manner in which the upper ends of the flutes terminate below the hypo-trachelion.

Fig. 6. A section through the base, showing the true contour of the moulding.

Fig. 7. A horizontal section through a part of the column; showing the curvature of the flutes where they terminate at the bottom.

I shall add to these examples two others from modern authors, in order to show the state of the Doric Order in different ages. The first of these is taken from the famous Andrea Palladio, who has greatly contributed toward the revival of antient Architecture. The second is taken from the late Sir William Chambers; it is nearly a copy of Vignola's Doric, which he approves of beyond any other.

EX-

in the same perpendicular plane in which the edges of the triglyph are; which makes the guttæ too narrow for their height, and also is the cause of the triglyph projecting beyond the epistilium; for the regula should be either in a line with the edges of the triglyph, or project equally beyond them.

EXAMPLES

FROM

MODERN AUTHORS.

EXAMPLE I. PLATE 154.

The Elevation of the Doric Order of Andrea Palladio, with its Proportions in Numbers.

The corona and its soffit, is nearly the same as that on the Theatre of Marcellus.

The bed moulding under the corona is not consistent with the simplicity of this order*.

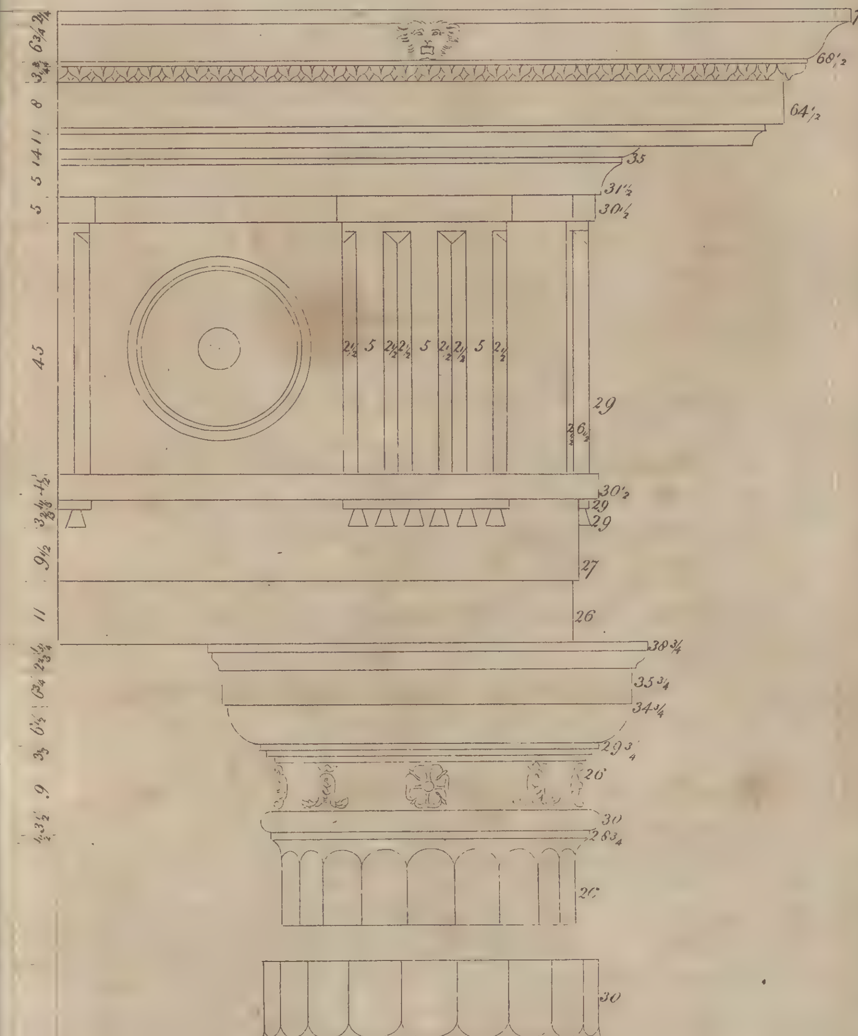
The frize is the same as in the preceding examples, and according to Vitruvius.

The

* The cornice of this example is executed by the celebrated Inigo Jones on the outside of the Treasury, in St. James's Park; but its great projection and drooping front causes a large body of shade to be under it; the great distance of the eye also renders it scarcely visible, even if the eye is almost in a line perpendicular below the cornice, by reason of the great body of air through which the sight must penetrate.

ROMAN ARCHITECTURE

From Andrea Palladio



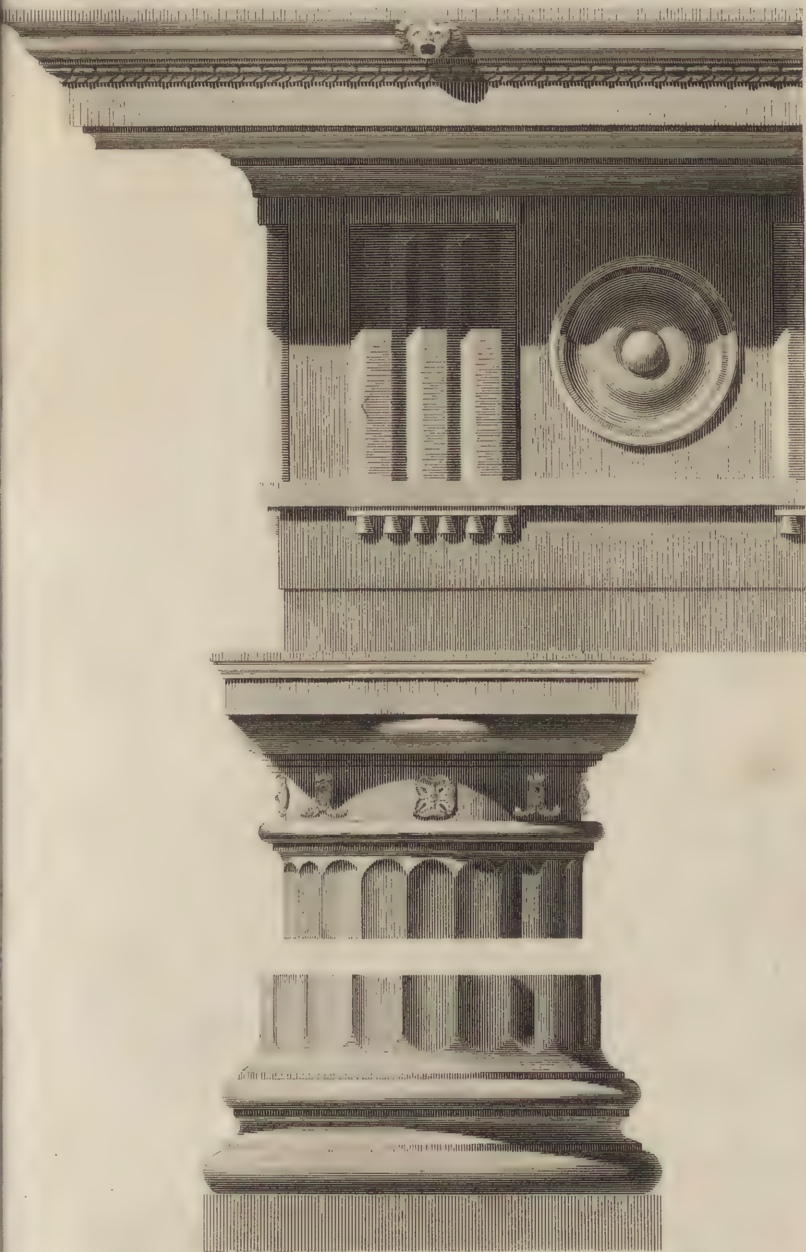
...wn by P. Nicholson

Engraved by Roffe

London, Published by P. Nicholson & C.o April, 1798.

ROMAN ARCHITECTURE

From Palladio.



Drawn by P. Nicholson

Engraved by Samuel Porter

London Published by P. Nicholson & C.º April 1798.

ROMAN ARCHITECTURE

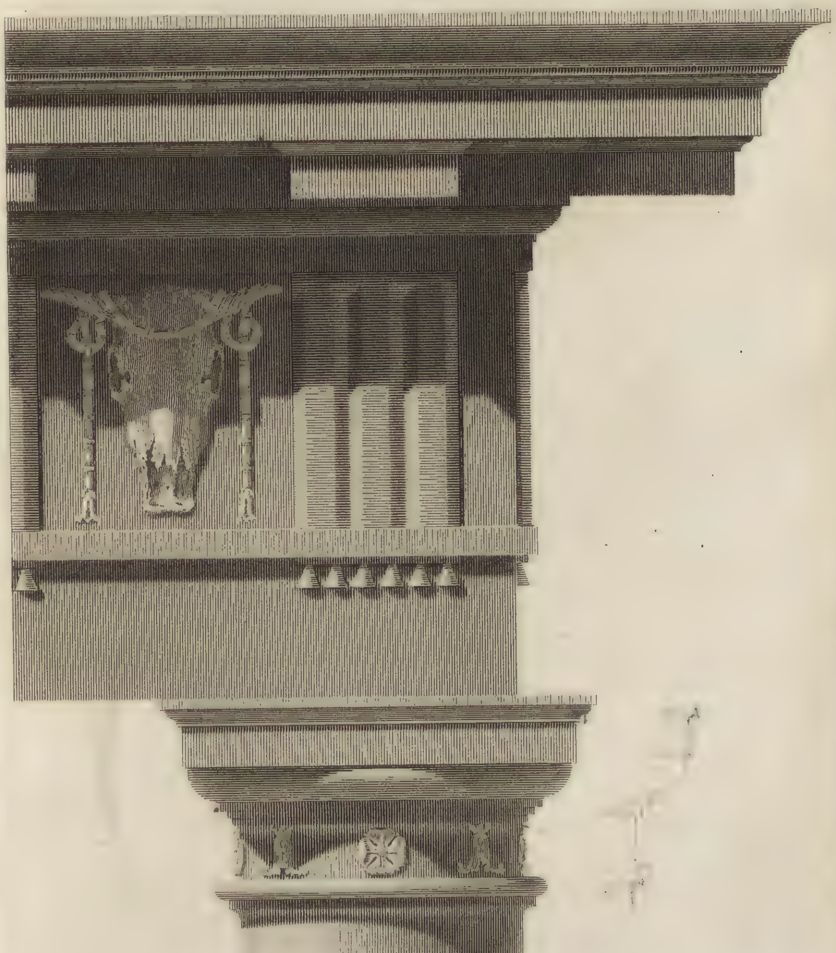
From Andrea Palladio.

Drawn by P. Nicholson

Engraved by Roffe

London Published by P. Nicholson & C° April 1798

ROMAN ARCHITECTURE



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The architrave is the same as on the Theatre of Marcellus, and of the same altitude.

The mouldings in the capital are also of the same kind as in that example, but different in their proportions.

Here a base is allowed, which is not in the original Doric. This composition has altogether the same fault which has accompanied all the preceding examples of Roman Dorics, viz. that of being too abundant in mouldings.

Plate 155.

The contents of Plate 154 shadowed.

Plate 156.

Fig 1. A section through the cornice, shewing the guttæ under the corona.

Fig. 2. Soffit of the corona, with the drops and lacunaria.

Fig. 3. The other enrichment in the metopes, which are placed alternately with roses in the frize.

EXAMPLE II. Plate 157.

Elevation of the Doric Order, as approved of by Sir William Chambers.

This composition is nearly the same with Vignola's second example; the only difference is, that in the crown

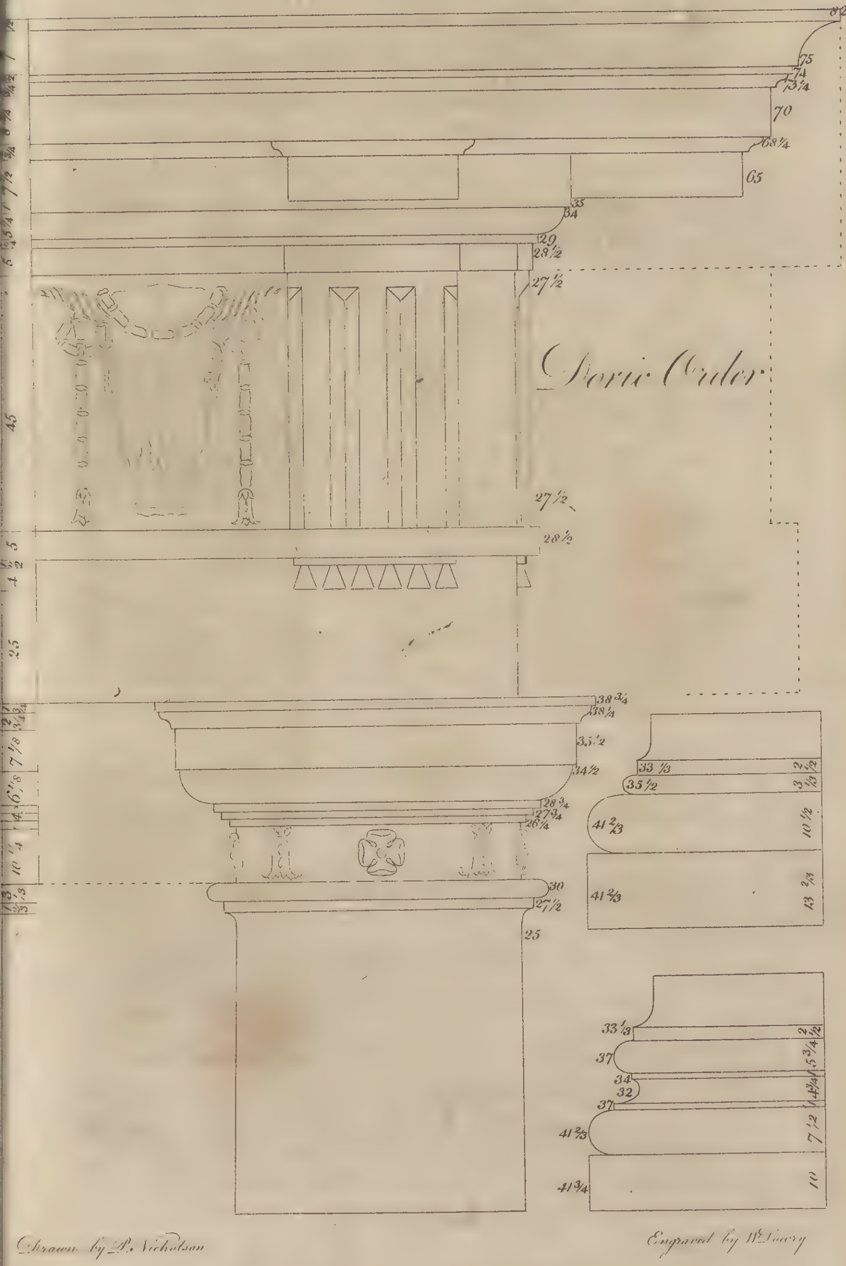
crown moulding Vignola puts a cima-recta, whereas Sir William Chambers puts a cavetto; Vignola makes his mutules project more than the breadth of the triglyph, and their fronts are rabitted from the front and underside, and a scotia or hollow sunk upwards, parallel to the front of the triglyph, which leaves a fillet between itself and the drops; whereas in Chambers's Doric, a simple fillet of an equal breadth incloses the drops all round, excepting at the back of the mutule. Vignola has six drops in length, and six in width; that of Chambers has the same number, but that part of the mutule which projects beyond the scotia, makes the whole projection of the mutules of Vignola's Doric greater than that of Sir William Chambers. The frize of this example differs from Vignola's in the upper end of the two extreme channels of the triglyph; Vignola makes them finish with circular segments, or quadrants, the centers of each being in the outer edges of the triglyph; whereas Chambers finishes his semichannels at the upper ends, in the same manner as in the middle channels; the mouldings are the same in all other respects, except that Vignola enriches the mouldings, whereas Chambers makes them plain. Vignola has added a base to his order, which the moderns call a Doric base; whereas Chambers allows the attic base, excepting the Ionic Order be executed over it, in which case he advises the Doric base to be used.

Plate 158.

Fig. 1. Entablature and capital of the columns, with the upper part of the shaft, containing the proportions in numbers.

Fig. 2.

ROMAN ARCHITECTURE

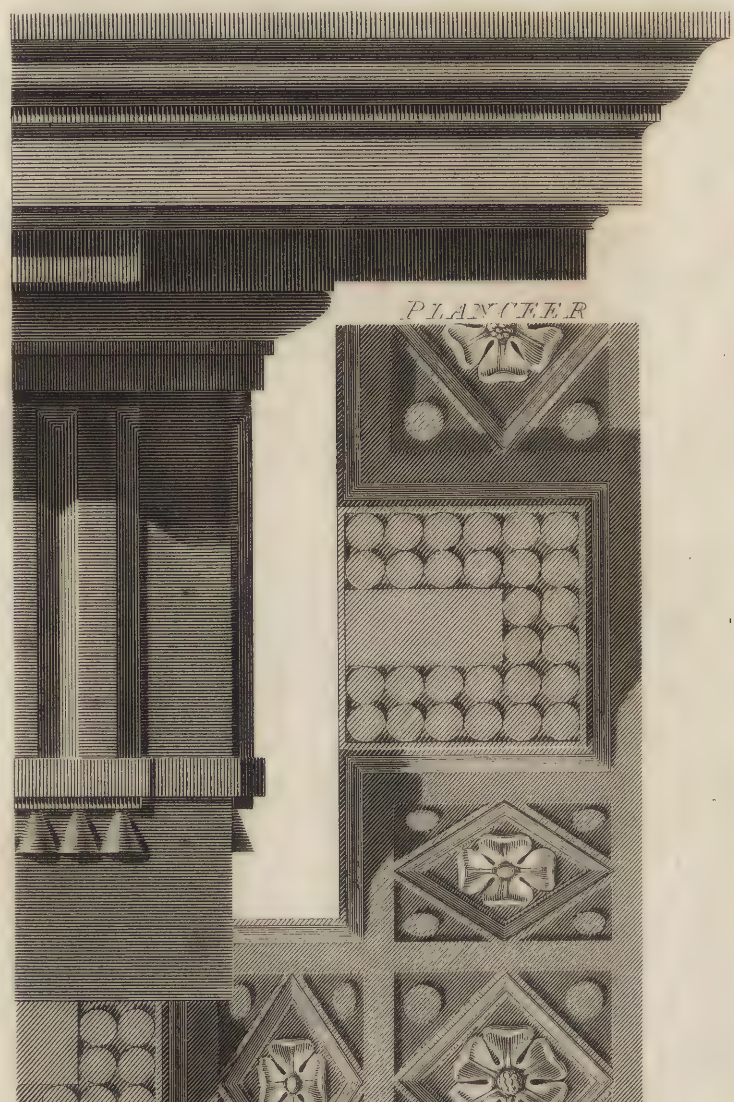


Drawn by P. Nicholson

Engraved by W. Lowry

London, Published Octr. 1796, by P. Nicholson & Co.

DORIC ENTABLATURE.



Drawn by P. Nicholson

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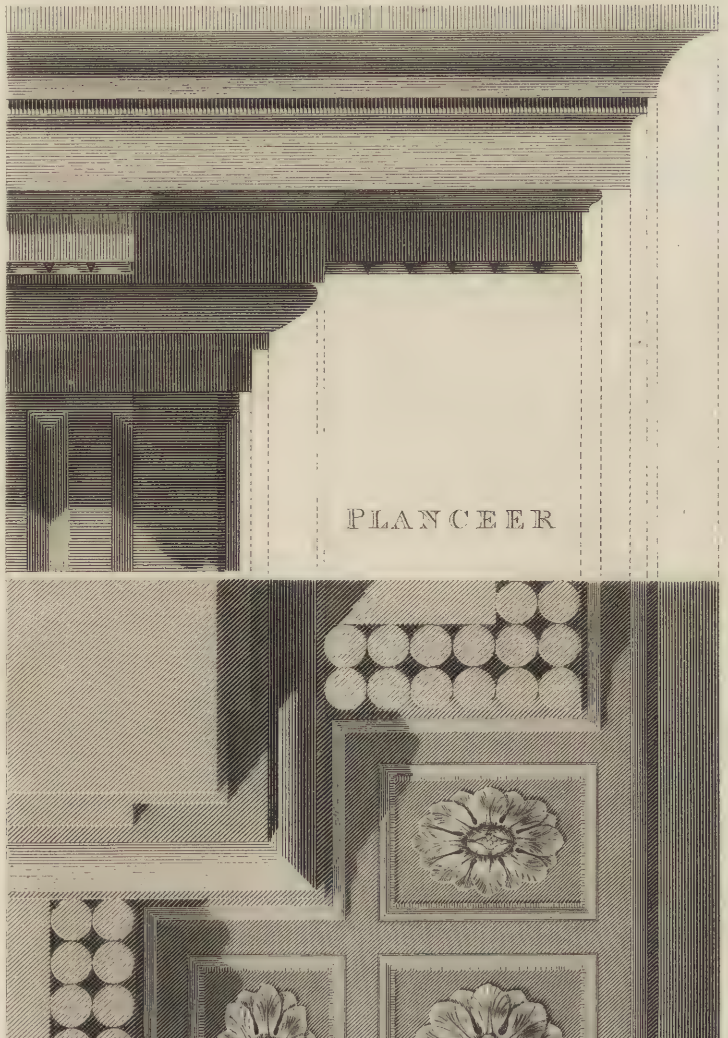
London, Published June 1. 1795. by P. Nicholson & C.o

Pl. 160.

DORIC CORNICE.



Drawn by P. Nicholson. *Engraved by W. Lowry*

Published by P. Nicholson, Feb. 21. 1795.

Fig. 2. The Doric base, with the proportions of the members in numbers.

Fig. 3. The attic base, with the proportional measures in numbers.

Plate 159.

A Doric Entablature, shewing the Soffit of the Mutules and Corona.

Plate 160.

Another Example, showing a different Design for the Soffit.

These two last examples are added for the sake of variety, and to show the taste of the present time. From these examples it appears by the mouldings, that the Grecian style begins to gain ground in common practice, although the general form and manner is the same as in Vignola or Chambers's Doric.

The enrichments employed by the moderns in the metopes of this order, are oxes sculls, and Pateras, placed alternately, perhaps in imitation of those in the frize of the temple of Jupiter Tonans, at Rome. A Doric frize of this kind has been found at Athens, and is represented in Stuart's Antiquities* of that celebrated city ; but these ornaments are too scanty for all kinds of buildings; and a greater field may be opened by intro- ducing

* Book I. Chap. I.

ducing historical figures, such as are suitable to the character and use of the building in which they are employed. Of such decorations are the frizes of the temples of Minerva and Theseus, at Athens, the grandeur and effect of which edifices have excited astonishment in the mind of every traveller; other kinds of ornaments, of a bold and simple form, may be introduced on various occasions. In military structures, the heads of Mars, Medusa, the furies, likewise helmets, shields, and other implements of war, may be admitted; but care must be taken, that the projectures of these ornaments do not exceed the plane of their enclosure.

PLATE 161.

The contents of Plate 160 shadowed.

GRECIAN MOULDINGS,

COMPARED WITH THOSE OF THE ROMAN,

TO SHEW THE DIFFERENCE OF

THEIR FORM AND APPLICATION.

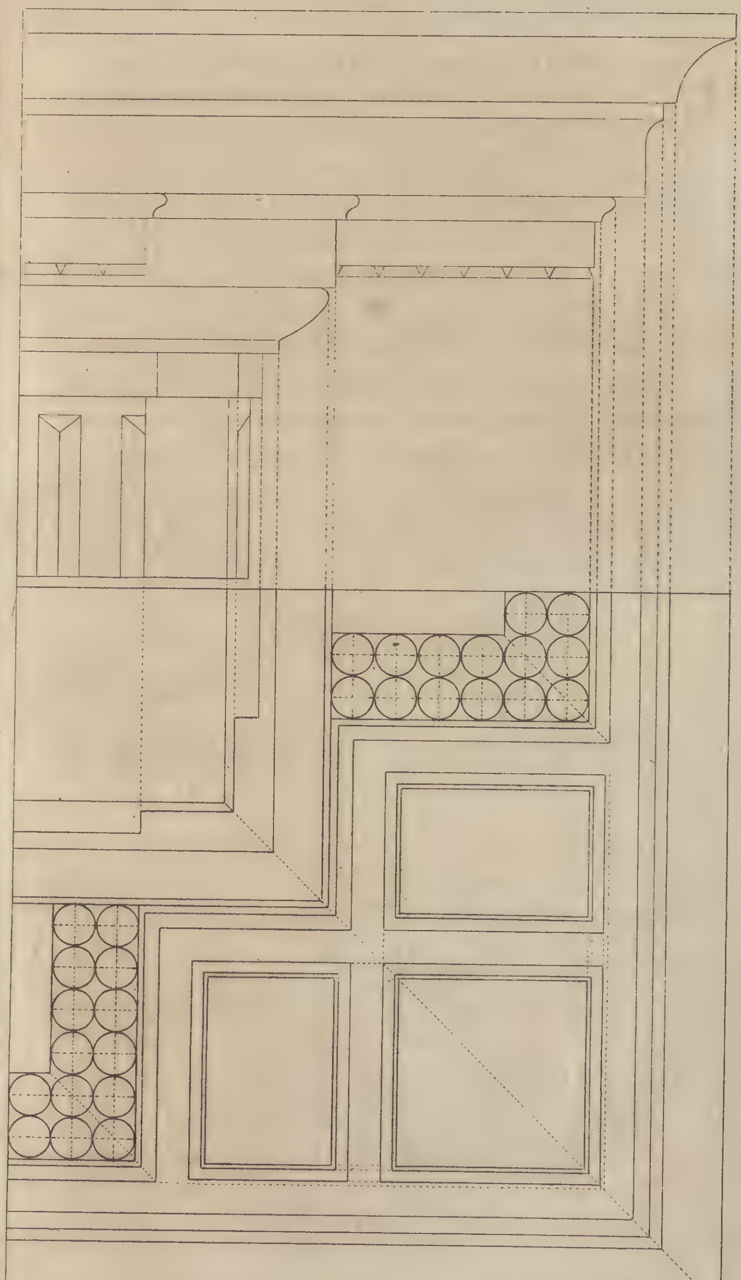
I. *Of a Bead.*

This moulding is similar in both Greek and Roman architecture.

II. *Of the Torus.*

The torus in most cases is similar to a bead; it is always so in Roman architecture, but not always in the Greek;

DORIC PLANCEER



London Published as the Act directs by P. Nicholson Feb. 1795

Greek ; as may be seen in various examples where the contour of this moulding is elliptical. The bases of the columns of the temple of Minerva Polias, and also the bases of the columns on the monument of Lysicrates, are instances of the elliptical forms of Toruses.

III. *Of the Ovolo, or Echinus.*

The Greek ovolo differs greatly from that of the Roman: its contour is in general a part of the ellipsis; in some cases it is hyperbolical, and even in some a straight line ; the elliptical ovolo is always used in cornices, architraves, and likewise in all mouldings projecting from plain surfaces. It is also to be met with in the capitals of columns.

Of such forms are the echinus of the capitals of the Doric portico at Athens, the temple of Corinth, and the temples at Pœstum, in Italy, which are all elliptical; but the hyperbolical form is oftener to be met with in the capitals of Athenian buildings, than any other.

Of such are the echinus of the capitals of the temples of Minerva and Theseus, and also the capitals of the columns of the Propylea, or grand entrance into the citadel. These are all Athenian buildings, which were erected during the administration of Pericles; and the portico of Philip, King of Macedon, is an instance in which the echinus is a straight line.

In Roman architecture, the echinus is always some part of a circle, never exceeding a quadrant, but often less.

IV. *Of the Cavetto.*

The cavetto is the same both in Roman and Grecian architecture, except in its application. There is not an instance to be met with in Greece*, where the crown moulding is a cavetto, but there are many in the Roman.

V. *Of the Doric Cimatium.*

This moulding is constantly used in Greek buildings, under the fillet of a finishing or crown moulding ; but in Roman buildings there are no instances whatever of any such moulding.

VI. *Of the Cima-recta.*

This moulding is nearly of the same form, both in the Grecian and Roman Architecture, and is also applied for the same purpose in both.

VII. *Of the Cima-reversa.*

This moulding is nearly similar in the Grecian and Roman architecture, and is in general applied under the fillet of the crown moulding of the cornices of Robuildings ; but is never so applied in Greek buildings, one instance excepted, which is the portico of Philip, King of Macedon.

THE

* There are some out of Greece ; but of these there are few instances, which may be looked on as deviations from the established methods that were used by the Greeks.

THE EFFECT OF

GRECIAN MOULDINGS,

COMPARED WITH

THE ROMAN OF THE SAME KIND.

I. *Of the Ovolo.*

The bending or turning inwards of the upper edge of the Grecian ovolo causes, when the sun shines on its surface, a beautiful variety of light and shade, which greatly relieves it from plane surfaces; and if it be entirely in shadow, but receive a reflected light, the bending or turning inwards at the top will cause it to contain a great quantity of shade in that place, but softened downwards round the moulding to the under edge.

In the Roman ovolo there is no turning inwards *; at the top, therefore, when the sun shines on its surface, it will not be so bright, on its upper edge, as the Grecian ovolo; nor will it cause so beautiful a line of distinction from other mouldings which it is combined with when it is in shadow, and when lighted by reflection.

II *Of*

* That is to say, the upper edge of the moulding does not recede from a plane touching its surface, and perpendicular to the horizon.

II. *Of the Cima-reversa.*

In the Greek cima-reversa, the turning in of its upper edge, and the turning out of its under edge, will cause it, when the sun shines, to be very bright on these edges, which will greatly relieve it from other perpendicular surfaces when combined together; and when it is in shadow, and lighted by reflection, the inclination of the upper and under edges will also make a strong line of distinction on both edges, between it and other mouldings, or of planes connected with it; whereas the upper and under edges of the Roman cima-reversa* being perpendicular to the horizon, the lightest place on its surface will not be brighter than a perpendicular plane surface, nor will it be better relieved in shadows than perpendicular plane surfaces also in shadow.

THE

* There are some instances in Roman buildings where the cima-reversa is turned inwards at the top, and outwards at the bottom, but this seldom occurs, except there is not sufficient projection to its height.

THE EFFECT OF

GRECIAN MOULDINGS,

COMPARED WITH

ROMAN MOULDINGS OF A DIFFERENT KIND

BUT IN SIMILAR SITUATIONS.

I. *Of the Greek Ovolo, compared with the Roman Cavetto, when used as finishing Mouldings.*

The upper mouldings in all the remains of antiquity are either entirely destroyed or very much defaced. It is certain, that if ovolos, which are strong mouldings, had been employed instead of cavettos*, many of them would have been almost entire; and as the degrees of light and shade on the surface of the ovolo, whether from

* Some authors say, that the cima-recta and cavetto were always used as finishing mouldings, but it is quite the reverse; for in the antique buildings now remaining in Greece, there is not a single instance where a cavetto is used for the upper member of a cornice; but in Doric buildings the cornice always finishes with an ovolo; and in buildings of the Ionic and Corinthian Orders, they are finished with cima-rectas.

sunshine, or from any other light, is beautiful and soft, but the shadow of the cavetto from sunshine is very hard, and will not contain so great a variety of light and shade on its surface, it will therefore be less pleasing to the eye.

II. *The Doric Cimatium used by the Grecians under the Fillet of the Crown Moulding, compared with the Cima-reversa in the same Situation.*

The front of the Doric cymatium is a convex elliptical curve, and is sunk at the upper edge in the manner of a Grecian ovolo; therefore the light and shade on its front will be nearly similar to an ovolo; and as the sinking upwards behind the front will cause it to contain a quantity of shade, which will form a line of separation from the corona, and consequently make it appear more distinct at a distance; but the Roman cima-reversa being so very flat, would not be well relieved, and its profile would be lost entirely at a distance.

PROBLEM I.

To find, from the remains of Grecian buildings, a method for finding the height of the entablature of the Grecian Doric, from the diameter or the height of the column, according to the practice of the antients.

Before I proceed to lay before the reader the proportions of columns and entablatures from the remains of antient

antient buildings, it may not be improper to observe, that the height of the entablature should never be proportioned to the height of the column.

Suppose two columns of the same height, but of different diameters, it is evident that each of these will support weights in proportion to the areas of their bases, when the materials are equally good in both; hence a column which is double the diameter of another, but the same height, will carry four times the weight; for the areas of the base of the former will be four times that of the latter, and consequently the entablature* of the former ought to be four times higher than the latter, when the length and breadth of the entablatures are the same; but as such accuracy is not wanted, it will be sufficient in practice to make the heights of entablatures simply as the diameters of the columns supporting them; then a column, which is double the diameter of another, but of the same height, will have an entablature of a double height to the entablature of the other. It is evident that the same rule is applicable to columns of different heights, as well as of different diameters, as columns may be executed of different heights similar to each other; for it is also evident in this case, that their entablatures will be proportional to the height of the columns, as well as to their diameter. Having thus far entered into the theory, let us now see whether or not the antients observed such a rule in practice.

* By entablature the author does not only mean that part called the cornice, frize, and architrave, but the whole of the mass supported by the columns.

It appears from the remains of antique buildings, that where the columns are only four or five diameters high, they are charged with entablatures, which are much higher, in proportion to the height of their columns, than the entablatures of smaller buildings which are supported by columns of more diameters; but in order to draw some kind of data for finding the height of the entablature, according to the practice of the antients, the best method would be to compare the height of the columns in modules or minutes, in each building, with that of their respective entablatures: I shall first begin with the slightest of these.

The columns of the portico of Philip, King of Macedon, are thirteen modules high, and they sustain an entablature of three modules seventeen minutes high.

The columns of the Doric Portico, at Athens, are twelve modules and two minutes and a half high, and they sustain an entablature of three modules and thirteen minutes high.

The columns of the Propylea are eleven modules and twenty-four minutes high; the cornice is destroyed; but the height of the architrave and frize together is three modules; the whole height therefore must have been about four modules.

The columns of the temple of Theseus are eleven modules twelve minutes and a half; the upper member of the entablature is broken off; but, exclusive of that, the remaining part is three modules twenty-eight minutes, and consequently the whole entablature must have been about four modules and ten minutes.

The

The columns of the temple of Minerva are eleven modules and four minutes; the entablature is three modules and twenty-eight minutes four-fifths, or four modules nearly.

The columns of the temple of Corinth are eight modules four minutes high; the cornice and frize is destroyed; but it appears, from the great height of the architrave, that the entablature must have been above two diameters of the column.

Of the columns of the temples at Pœstum, in Italy, which are nearly of the same proportion as those on the temple at Corinth, some are charged with entablatures of above two diameters high.

Now from the first of these, viz. that of the portico of Philip, King of Macedon, and also from the Doric Portico at Athens, we shall have the height of the entablature between one fourth and one third of the column; but from the latter, viz. those on the temples at Corinth, and at Pœstum, the entablatures are half the height of the column. From this comparison, it appears, that the antients never proportioned the heights of their entablatures to those of their columns: but we find that the entablatures of all these examples approach to nearly two diameters of the column, excepting the two first, viz. that on the portico of Philip, King of Macedon, in the Island of Delos, and that of the Doric Portico, at Athens. These examples do not increase very regular in their proportions, yet they are sufficient to show that the antients never regarded the height of the column, but the diameter; however,

precise regularity is not to be expected; unless it could be demonstrated, that when the height of the column is in a certain ratio to its diameter, the entablature would also be in a given ratio to the column: but indeed such precision is not wanted; for any of these columns are sufficient to sustain at least twenty times more weight than that which they are loaded with; but as these buildings were intended to stand the test of time, it was therefore necessary that the columns should be much stronger than those which would support the same entablatures for a short time.

Parts which are common to both the Grecian and Roman Doric Orders.

In every Doric order, whether Grecian or Roman, they have triglyphs and metopes in their frizes; each triglyph has three femurs, two whole channels, and a half channel at each edge of every triglyph.

In every architrave, whether of the Grecian or Roman Doric, they have a tenia, and under the tenia they have a regula, to which are hung six conical drops: the ends of each regula, and the extremity of the guttæ, or drops, are in the same perpendicular with the edges of the triglyph.

In every fluted Doric column, whether Grecian or Roman, there are always twenty flutes without fillets between them; the under ends of the columns have no base, but rest upon a plain step.

PROBLEM

PROBLEM II.

To find, from the remains of antiquity, the proportion between the cornice, frize, and architrave of the Grecian Doric.

In order to draw a conclusion, I shall give the proportion of the cornice, frize, and architrave, of the several noted buildings in the following table.

	Names of Buildings.	Cornice.	Frize.	Architrave.
1	Portico of Philip.	25 min.	min. 44	minutes. 38
2	Doric Portico	min. $21\frac{3}{10}$	min. $42\frac{1}{4}$	min. 40
3	Temple of Theseus.	min. $19\frac{2}{5}+$	min. $48\frac{3}{4}$	min. $50\frac{1}{5}$
4	Temple of Minerva.	min. $32\frac{3}{10}$	min. $43\frac{1}{5}$	min. $43\frac{1}{5}$
5	Propylea.	wanting	min. $45\frac{12}{20}$	min. 46

In the first of these, viz. the Portico of Philip, King of Macedon, the entablature is greater than four times the height of the cornice, by seven minutes:

In the second, viz. the Doric Portico, the entablature exceeds four times the height of the column, by $18\frac{7}{20}$ minutes.

In the third, viz. the temple of Theseus, four times the height of the cornice must have exceeded the height of the entablature, as the crown moulding and its fillet is wanting.

From the fourth, viz. the temple of Minerva, the entablature is less than four times the height of the cornice by $10\frac{1}{2}$.

From these we may conclude, that the cornice is $\frac{1}{4}$ of the height of the entablature at a mean, as it is sometimes more and sometimes less.

It will be found, by inspecting the table, that the frizes and architraves of all these examples are nearly equal, except in the first, where the frize exceeds the architrave by 6 minutes; so that the cornice, frize, and architrave, of the Grecian Doric, will be respectively to each other, as the numbers 2, 3, and 3.

The height of the entablature therefore is divided into eight equal parts; two of these parts will give the height of the cornice, three the height of the architrave, and three the height of the frize.

Or divide the whole entablature into four parts; give the upper one to the height of the cornice, divide the

the remainder into two parts, give one of these parts to the architrave, and the other to the frize.

These are the proportions of the three principal divisions of the entablature for public buildings.

For private buildings, where their parts are not required to be seen at any great distance from them, the order may have its parts of a light proportion; then the whole entablature may be three modules and a half high, or one hundred and five minutes; its height may be divided into seventeen equal parts; four of such will be the height of the cornice, seven that of the frize, and six the height of the architrave; this last division of the entablature will agree with the proportions of the cornice, frize, and architrave, of the portico of Philip, King of Macedon, which are to each other respectively as the numbers 25, 44, and 38; the height of the entablature, viz. 105 minutes, is a mean proportion between the entablature of the portico of Philip, King of Macedon, which is 107 minutes, and that of the Doric Portico, at Athens.

Another proportion, which will agree with the proportions of the entablature of the Grecian Doric order, so that the small parts may be something larger than in the last proportion, and to have the entablature of the same height: Divide the whole height of the entablature into four equal parts, and give the upper one to the height of the cornice; then divide the three lower into fifteen equal parts, give eight of these parts to the frize, and seven to the architrave; then the cornice would be less, in proportion to the height of the entablature, than the cornice of the temple of Theseus

and

and Minerva would be to their entablature: but greater, in proportion to its entablature, than either the cornice of the portico of Philip, King of Macedon, or the cornice of the Doric Portico, at Athens, to their entablatures; and therefore may be looked upon as a mean among these examples; and the division of the architrave and frize is a mean proportion between the portico of Philip, and the Doric Portico at Athens, but nearer to the former than to the latter.

PROBLEM III.

To determine, from the remains of antiquity, the proportion of the breadth of the triglyph to its height, and likewise the proportion of its capital.

The whole height of the triglyphs of the portico of Philip, King of Macedon, excluding the capital, is 38 minutes, and their breadth is $27\frac{2}{3}$ minutes; we shall find that $\frac{3}{4}$ of 38 is $28\frac{1}{2}$, which is greater than $27\frac{2}{3}$, but $\frac{5}{7}$ of 38 is $27\frac{1}{7}$, which is less than $27\frac{2}{3}$.

The height of the triglyphs of the Doric Portico at Athens, excluding their capital, is $36\frac{1}{2}$ minutes, and their breadth $27\frac{3}{4}$; we shall find that $\frac{3}{4}$ of $36\frac{1}{2}$ is $27\frac{3}{8}$, which is less than $27\frac{3}{4}$.

The height of the triglyphs on the temple of Theseus at Athens, excluding their capital, is 42 minutes, and their breadth 31; then we shall find $\frac{3}{4}$ of 42 is $31\frac{1}{2}$, which

which is greater than 31; but $\frac{5}{7}$ of 42 is 30, which is less than 31.

The height of the triglyphs of the temple of Minerva at Athens, excluding their capital, is $37\frac{4}{5}$, and their breadth is $28\frac{1}{2}$; we shall find that $\frac{3}{4}$ of $47\frac{4}{5}$ is $28\frac{7}{20}$, which is less than $28\frac{1}{2}$.

The height of the triglyphs of the propylea at Athens, excluding their capital, is $41\frac{3}{20}$ minutes, and their breadth $28\frac{1}{2}$ minutes; we shall find that $\frac{3}{4}$ of $41\frac{3}{20}$ is 30·8625, which is greater than $28\frac{1}{2}$, and $\frac{5}{7}$ is $29{\cdot}39\frac{2}{7}$, which is also greater than $28\frac{1}{2}$; but $\frac{2}{3}$ of $41\frac{3}{20}$ is $27{\cdot}43\frac{1}{3}$, which is less than $28\frac{1}{2}$.

Now, by comparing these together, it will be found that $\frac{3}{4}$ of the height of the triglyphs, excluding the capital, will be a mean breadth among them; for the breadth of the triglyphs of the Doric Portico, and the temple of Minerva, exceed $\frac{3}{4}$ of their height, but all the others are less than $\frac{3}{4}$ of their height.

It will also be found, by comparing these examples, that $\frac{5}{7}$ of their height, excluding the capital, will give their breadth too narrow, except that of the propylea.

Then to determine the height of the capital of the triglyph to the whole height, I shall again state the proportions of these from the following examples.

The whole height of the triglyph of the portico of Philip, King of Macedon, is 44 minutes, and the height of their capital 6 minutes, and the number of times that 6 is contained in 44 is $7\frac{1}{3}$.

 The

The whole height of the triglyphs of the Doric Portico at Athens, is $42\frac{1}{4}$ minutes, and the height of their capitals is $5\frac{3}{4}$, and $42\frac{1}{4} \div 5\frac{3}{4} = 7\frac{8}{23}$.

The whole height of the triglyphs on the temple of Theseus at Athens, is $48\frac{3}{4}$ minutes, and the height of their capital is $6\frac{3}{4}$ minutes, and $48 \div 6\frac{3}{4} = 7\frac{2}{9}$.

The whole height of the triglyphs of the temple of Minerva, is $43\frac{1}{5}$, and the height of their capital 5 minutes, $43\frac{1}{5} \div 5 = 8\frac{16}{25}$.

The whole height of the triglyphs of the propylea, is 45·95 minutes, and the height of their capital is $4\frac{4}{5}$ minutes, and $45{\cdot}95 \div 4\frac{4}{5} = 9{\cdot}57+$.

Now by comparing these together, the mean will be found 8.

From these results, an easy rule for the proportion of the Grecian triglyphs is derived.

Divide the whole height of the triglyph into 8 equal parts; give one to its capital, and seven to the height of the lower part, and make the breadth equal to 5 of these parts: but this proportion is not quite so near to a mean as when the width is $\frac{3}{4}$ of the height.

Then the rule will be as follows:

Divide the whole height of the triglyph into eight equal parts, as before; give one to the capital of the triglyph, and divide the seven lower parts into four equal parts, and give three to the breadth of the triglyph, which will give it something less than the breadth of the triglyphs, on the Doric Portico, and the temple of Minerva.

To

To determine the Proportion of the Heights of the Cornice, Frize, and Architrave, of the Roman Doric Order.

The height of the cornice* of the Theatre of Marcellus is $37\frac{2}{9}$, the frize is $45\frac{5}{9}$ minutes, and the architrave is 30 minutes; consequently the entablature is $112\frac{7}{9}$ minutes, or three modules $22\frac{7}{9}$ minutes; if the cornice had been $\frac{10}{27}$ parts of a minute higher, it would have been $\frac{1}{3}$ of the height of the entablature; and if the architrave had been $1\frac{29}{35}$ lower, it would have been $\frac{1}{4}$ of the height of the entablature.

The height of the cornice of the Baths of Dioclesian is 42 minutes, the frize is 49, and the architrave 32; and consequently the height of the entablature is 123 minutes, or 4 modules 3 minutes; if the cornice of this example had been 1 minute lower, it would have been $\frac{1}{3}$ of the height of the entablature; and if the architrave had been $1\frac{1}{4}$ lower, it would then have been $\frac{1}{4}$ of the height of the entablature.

The height of the cornice of the Doric Order, found at Albano, near Rome, is 35 minutes, the frize is 45, and the architrave 31; consequently the height of the entablature is 111 minutes; if the cornice had been

* The capital of the triglyph is not included in the height of the cornice in any of these examples, nor in any example whatsoever in this work, but is always reckoned a part of the frize.

2 minutes higher, it would have been one third of the height of the entablature; and if the architrave had been $3\frac{1}{4}$ lower, it would have been one fourth of the entablature.

The height of the cornice of Palladio's Doric, is 33 minutes, the height of the frize 50, and the architrave 30; consequently the height of the entablature is 113 minutes; if the cornice had been $4\frac{2}{3}$ higher, it would have been one third of the entablature; and if the architrave had been $1\frac{3}{4}$ lower, it would have been one quarter of the entablature.

The height of the cornice both in Vignola and Chambers's Doric, is 40 minutes, the frize 50, and the architrave 30; so that the architrave, cornice, and frize, are to each other as the numbers 3, 4, and 5; therefore divide the height of the entablature into 12 equal parts, give the four uppermost to the cornice, the five next to the frize, and the three lower of these parts to the architrave; then will the cornice have a third part of the entablature, and the architrave one fourth.

THE PRINCIPAL PARTS

OF THE

GRECIAN DORIC,

COMPARED WITH THE ROMAN,

AND THEIR DIFFERENCES.

In the cornices of every example of the Grecian Doric Order are mutules, with three rows of drops hung to their under sides; the mutules are so distributed, that one is over the middle of every triglyph, and one over the middle of every metope; this is a constant and uniform feature which is never omitted in the Grecian Doric; but the cornice of what is called a Roman Doric, has no peculiar feature whatever, having in some examples mutules, and in others denteles, and is often executed without either; neither are the mouldings always the same, but vary in different examples.

In the Theatre of Marcellus, which is the most celebrated of all the Roman Dorics, the cornice is a mixture of the Doric and Ionic; for it imitates the mutules of the Doric cornice, which are seen underneath; but the denteles below properly belong to the Ionic, and are the most striking features of the cornice of that order:

order: we find, from what has been handed down to us, of the Baths of Dioclesian at Rome, an Ionic cornice over Doric triglyphs, which is too trifling for the manly character of the Doric Order; this erroneous practice has also been followed by some modern authors, particularly Scamozzi, and Vignola in his first example, which imitates the Theatre of Marcellus, at Rome. In the Roman Doric, the proportion of the cornice, frize, and architrave, of the entablature is found to be as the numbers 4, 5, and 3; but in the Grecian, the proportion of the cornice, frize, and architrave, are as the numbers 2, 3, and 4; from this comparison it appears, that if the proportion of the Roman entablature were inverted, it would be much nearer to the Grecian.

In the frize of every Grecian Doric Order, two triglyphs meet together at every angle of the building; so that the semichannel at the angle of the frize is common to both triglyphs, which are contained upon the two sides of that angle; in what is called the Roman Doric, the middle of the triglyph * is over the axis of the column at the angle of the building, and consequently a part of a metope will be left on each side, next to that angle, and will have their junction at the angle of the frize, which has a very naked and unmeaning appearance, and is much more so when the frize is ornamented, for no ornament can be disposed in the semimetope, which will correspond with the

* By the middle of the triglyph is meant the intersection of a vertical plane perpendicular to the front of the triglyph, dividing the triglyph into two equal parts, and also passing through the axes of the columns.

the metopes lying between the columns; but in the Grecian Doric, the two triglyphs next to the angle upon each side of the object meet together, by which means the angle is more finished, and all the metopes are enclosed with a border; by this means also the semimetopes are avoided.

In the Grecian Doric, the length of the metope is equal to the whole height of the frize; so that in the Grecian, it seems as if the whole height of the metope was equal to the height of the frize; and the plain part above the metopes, improperly called a part of the capital of the triglyphs, may be called, since it is the upper part of the metopes, the capital of the metopes, with as much propriety, as the upper parts of the triglyphs are called the capitals of the triglyphs; but in the Roman Doric, the length of the metope is equal to the height of the frize, excluding the capital of the triglyphs.

In the epistilium or architrave of the Grecian Doric Order, the guttæ, or drops, are frustums of very acute cones approaching nearly to cylinders, and the heights of each frustum or drop never exceeds three fourths of the diameter of its base; but in the epistilium of the Roman Doric, the height of the conical frustums or drops are never less than the diameter of their base, and are always from cones whose vertical angle is very obtuse.

In the Grecian Doric, the tenia of the architrave is always in one plane; but in the Roman Doric, the tenia of the architrave under the triglyph projects forward beyond those parts of the tenia under the metopes.

In

In the Grecian Doric, the architrave is always a uniform plane, which gives the idea of its surface being composed of one strong beam, conformable to its use; but in the Roman Doric the architrave is sometimes divided into two heights, or facias, which gives the idea of one beam lying over the top of another, contrary to the laws of strength, as the architrave is supposed to be the support of the entablature.

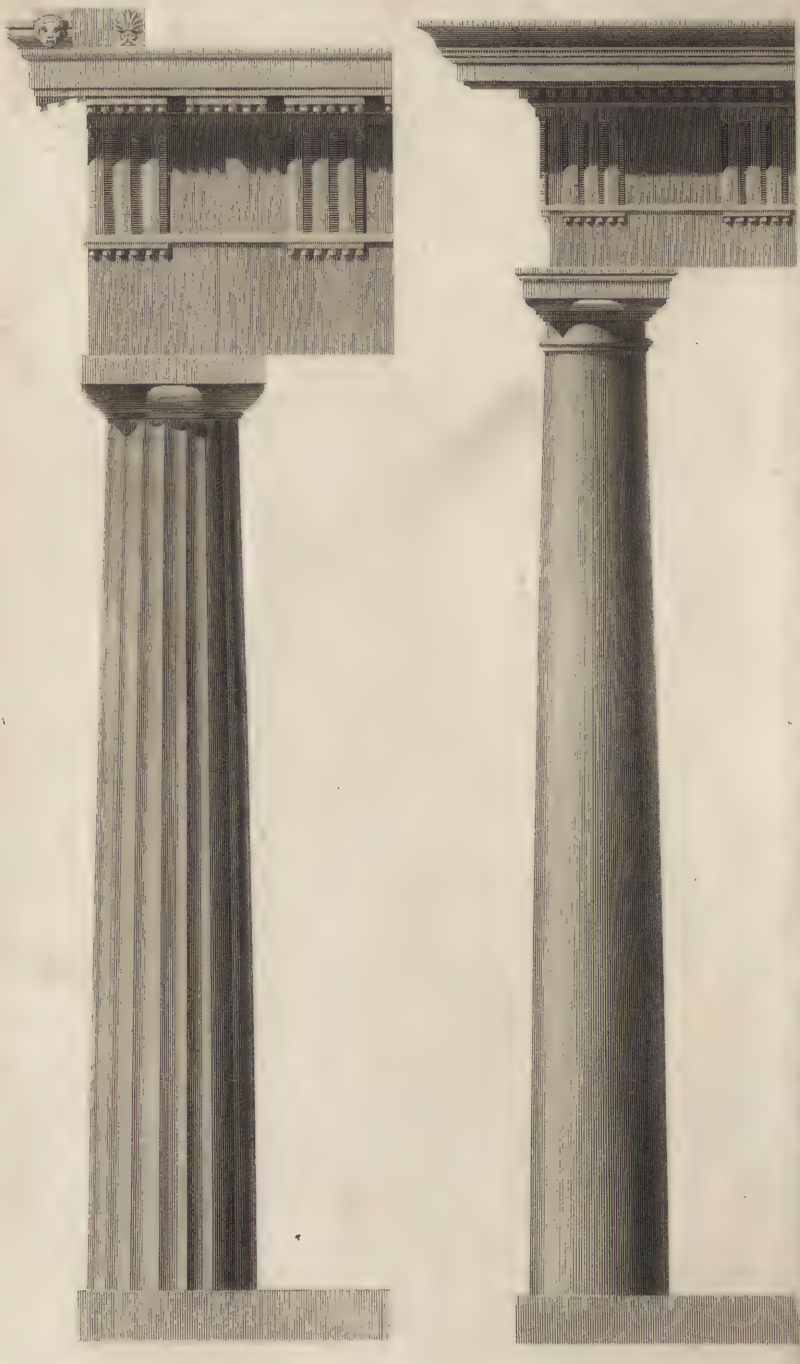
In the column of every Grecian Doric Order, the abacus of the capital is always plain, being a solid parallelopiped, of which its two horizontal sides are equal squares, and its verticle or perpendicular sides are equal rectangles; the inward recesses of the annulets in the capital are in the same curve line as the ovolo above them,* and their outward extremities are parallel to their inward recesses; the fluting of the column is always continued through the hypotrachelion, and also through the scape of the column, and terminates immediately under the lower annulet of the capital; but in the Roman Doric, the abacus is always crowned with a cymatium, and the inward recesses or angles of the annulets are never in the same curve line with the echinus, the hypotrachelion is never fluted, and the fluting of the column always terminates at the bottom of the scape under the fillet or apophygis of the column.

In the Grecian Doric, the highest columns which are to be found, are not more than 13 modules and four minutes; whereas in the Roman Doric the principal example is the Theatre of Marcellus; the height of the column is 15 modules and $21\frac{2}{3}$ minutes, which is too extravagant a height for columns without bases.

In

* The Doric Portico at Athens excepted.

GRECIAN DORIC. ROMAN DORIC.



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London, Published by P. Nicholson & C^o. Nov^r. 1797.

In the Grecian Doric the mean diminution of Doric columns is $\frac{2}{9}$ of the bottom diameter: but in the Roman, the mean diminution of the column is between $\frac{1}{5}$ and $\frac{1}{6}$, or $\frac{11}{72}$ of the bottom diameter.

Plate 162.

The Proportion of the Grecian Doric compared with the Roman, each having the same Altitude.

In this plate may be seen, at one view, the difference between the Grecian and Roman Doric, where the simplicity of the Grecian, the greatness of its parts, and their beautiful arrangement, will render its application to public buildings much more advantageous than the Roman, where its numerous members make it appear poor and trifling; its columns resemble a wooden pillar, and not a strong and durable marble or stone column, capable of supporting its entablature; the multiplicity and littleness of its members renders the cornice a mass of confusion, even almost at any distance from the object: but the boldness of the Grecian Doric attracts the attention of the spectator by the grandeur and fine proportion of its parts, the form of its mouldings, and the beautiful variety of light and shade on their surfaces, which greatly relieves them from each other, and renders their contour distinct to the eye*.

* The small parts of every object ought to appear distinct to the eye at a reasonable distance from the building; for if this be not the case, it will be labour in vain, and will greatly diminish the beauty of the building.

THE

IONIC ORDER.

It has already been observed, in the general definitions of the Orders, that every Order consists of a column and an entablature.

Every column consists of a base, a shaft, and a capital, except in the Doric, where the base is omitted.

Every entablature consists of an architrave, a frize, and a cornice.

That the base, shaft, captital, architrave, frize, and cornice, are the principal members of an Order.

And that the peculiar mode or form of the members determines the particular name of the Order ; but since many of the mouldings are common to all the Orders, and are generated in a similar manner, what has been said in the general definition, and also on the Doric Order, will render it unnecessary to repeat the same things in the Ionic, as such mouldings cannot form any particular feature of any particular Order. I shall therefore show, in the following definitions, how these members ought to be modified, so that they may constitute that Order invented by the Ionians, and called, from their name, the Ionic Order.

DEFI-

DEFINITIONS.

1. If from the under side of the abacus of an order there project two or more spirals on each end of the front, in a plane, parallel to the frize, so that the extremity of each shall be at the same distance from the axis of the column, and also two others upon the opposite side of the abacus, parallel to the former, and projecting the same distance from the axis of the column, so that each of the spirals shall have the same number of revolutions, and equal and similar to each other, the projecting part contained between any two spirals is called a Volute.

2. An Order which has volutes and mouldings in the capital of the annular kind, and the ichnography of the abacus square, as in the Doric Order, the architrave finishing of plain facæ and mouldings, either plain or enriched, the frize a plain surface, the cornice to consist of a cima-recta, then a fillet and an echinus only; and if to the under side of the corona are hung a row of equal and similar parallelopipeds equidistant from each other, whose fronts are in a plane parallel to the plane of the frize, then each of these parallelopipeds is called a Dentele.

3. An Order so constructed is similar to that invented by the Ionians, and consequently is the Ionic Order.

GRECIAN IONIC.

EXAMPLE I. Plate 163.

From the Ionic Temple on the River Ilissus, at Athens.

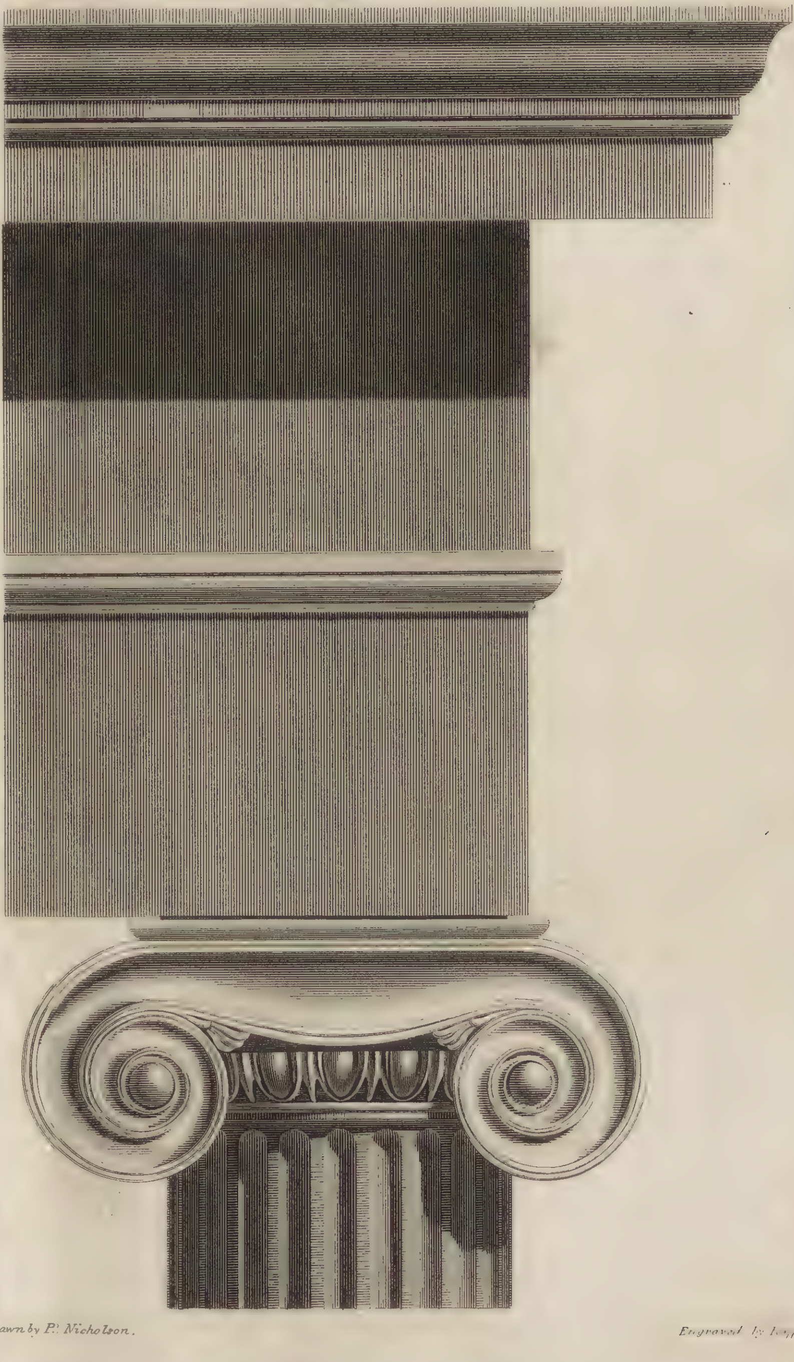
The simplicity and the greatness of the parts, their judicious arrangement, the beautiful turning of the volutes, and the graceful curve of the hem hanging between them, renders this one of the most beautiful and bold examples of this Order.

The elegant base of the column, the grand proportion of the entablature, the massy mouldings of the cornice, and the spacious surface of the frize, well adapted for sculptured ornaments, and the architrave for its strength, as it is not broken into two or more facæ, are considerations which should recommend this example*.

* This example has been executed, with little variation, by Henry Holland, Architect, on the colonade before Carleton-House; and also on the portico or entrance into Melbourne-House, Charing-Cross.

GRECIAN ARCHITECTURE

From the Ionic Temple on the Ilisus at Athens



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London, Published by P. Nicholson & C.o April 1798.

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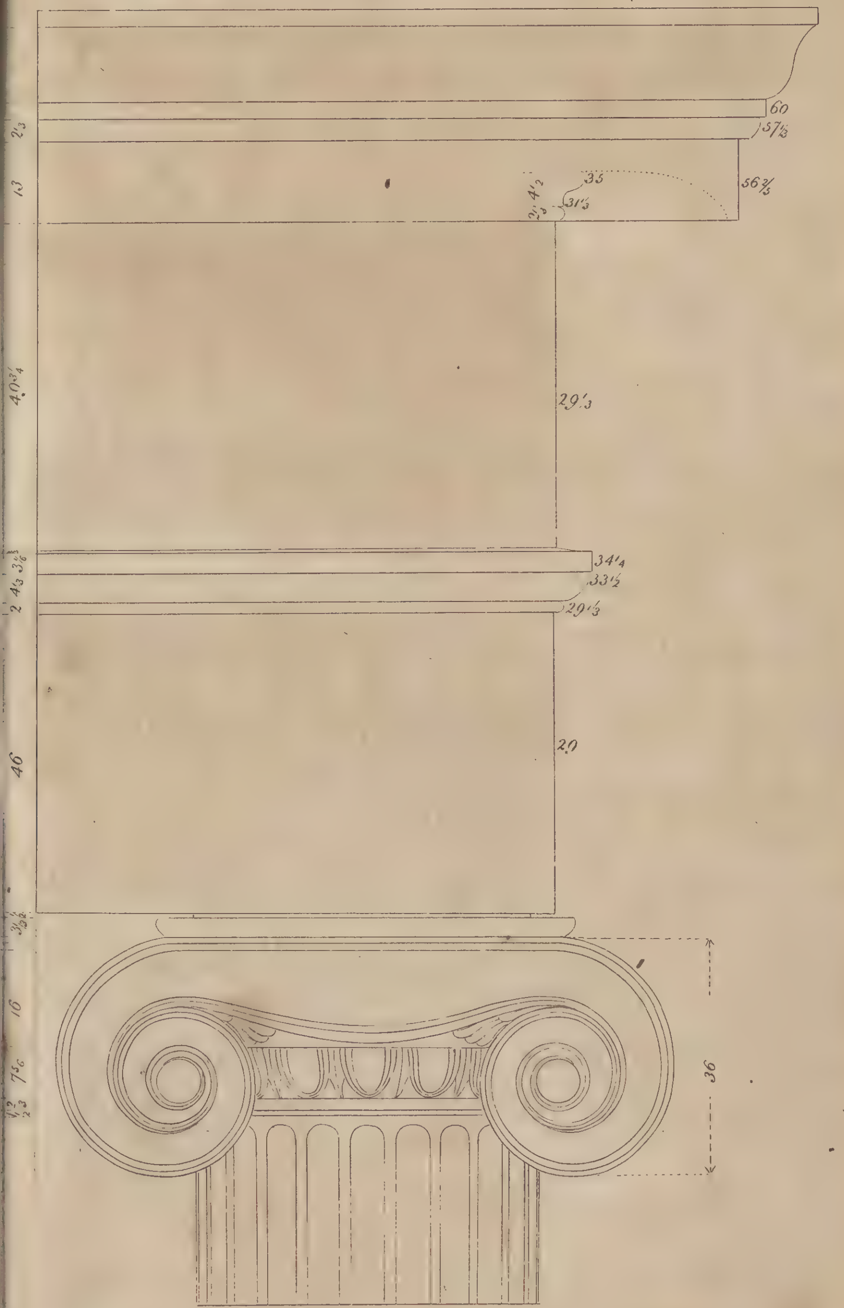

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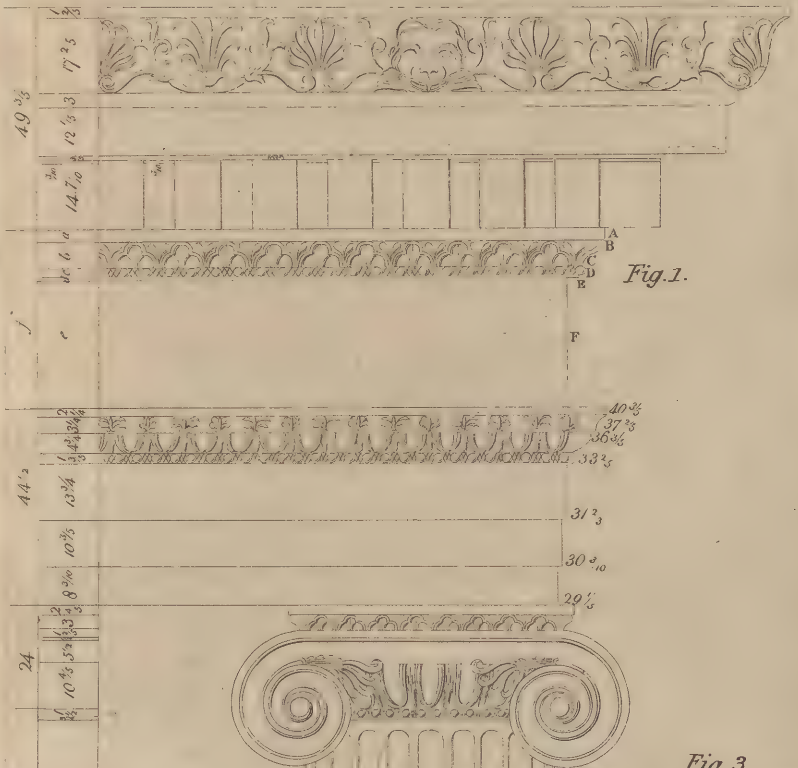
London, Published by P. Nicholson & Cº March, 1798.

Pl.165.

GRECIAN ARCHITECTURE

From the Temple of Bacchus at Teos.



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London. Published by P. Nicholson & C.º July 1797.

Plate 164.

The proportional measures in numbers, including the entablature and capital of the columns.

EXAMPLE II. Plate 165.

From the Temple of Bacchus, at Teos, in Ionia.

This temple was first begun of the Doric Order, by Hermogenus; but he afterwards changed it into the Ionic, and dedicated it to Bacchus.

This example is drawn from accurate measures, taken from that celebrated building.

The denteles, in the cornice, add greatly to the character of the Order.

Fig. 1. The entablature and capital of the columns. It may here be observed, that no measures have been taken of the parts which are marked in this example with letters, as none of them could be found: they are here supplied by mere conjecture.

Fig. 2. The base of the columns. It is thought from the little difference between the shaft at the base, and that immediately under the capital, that the base

which

which is here exhibited did not belong to the capital shown at Fig. 1. but to some of the interior columns; for the antients always made the interior ranges of columns less in diameter than the exterior, as is to be found in the celebrated Athenian buildings, the Temple of Minerva, and the Propylea.

Fig. 3. Profile of the front of the capital.

Plate 166.

Capital of the column to a larger scale.

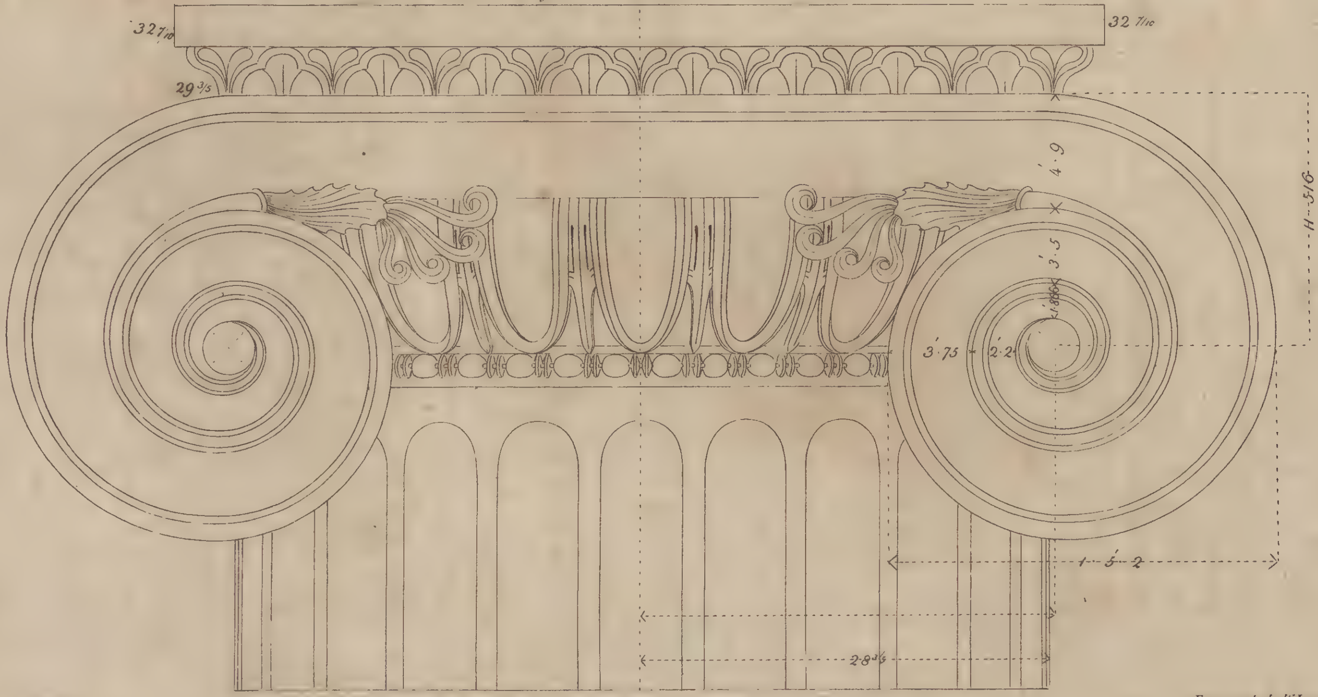
EXAMPLE III. Plate 167.

From the Temple of Minerva Polias, at Priene, in Ionia.

The small projection of the cima-recta, and its great height, is of itself beautiful and well contrived for the ornament, as it is less obscured by the shadow from the concave and convex parts of the moulding; this small projecture is also well adapted for a low corona; for the greater the projecture of the cima-recta, the more it will predominate over the corona, by the principles of optics; and on the contrary, the less the projecture of the cima-recta, the less it will predominate over the corona; it follows, therefore, that a low corona will require a cima-recta of a small projecture; but a great height of the corona will require a greater projecture of the cima-recta, and a less height. The denteles, which

are

From the Temple of Bacchus at Teos.



Drawn by P. Nicholson

Engraved by W. Lowry.

Pl. 166.

London, Published by P. Nicholson & C.° Aug.t 1797.

GRECIAN ARCHITECTURE

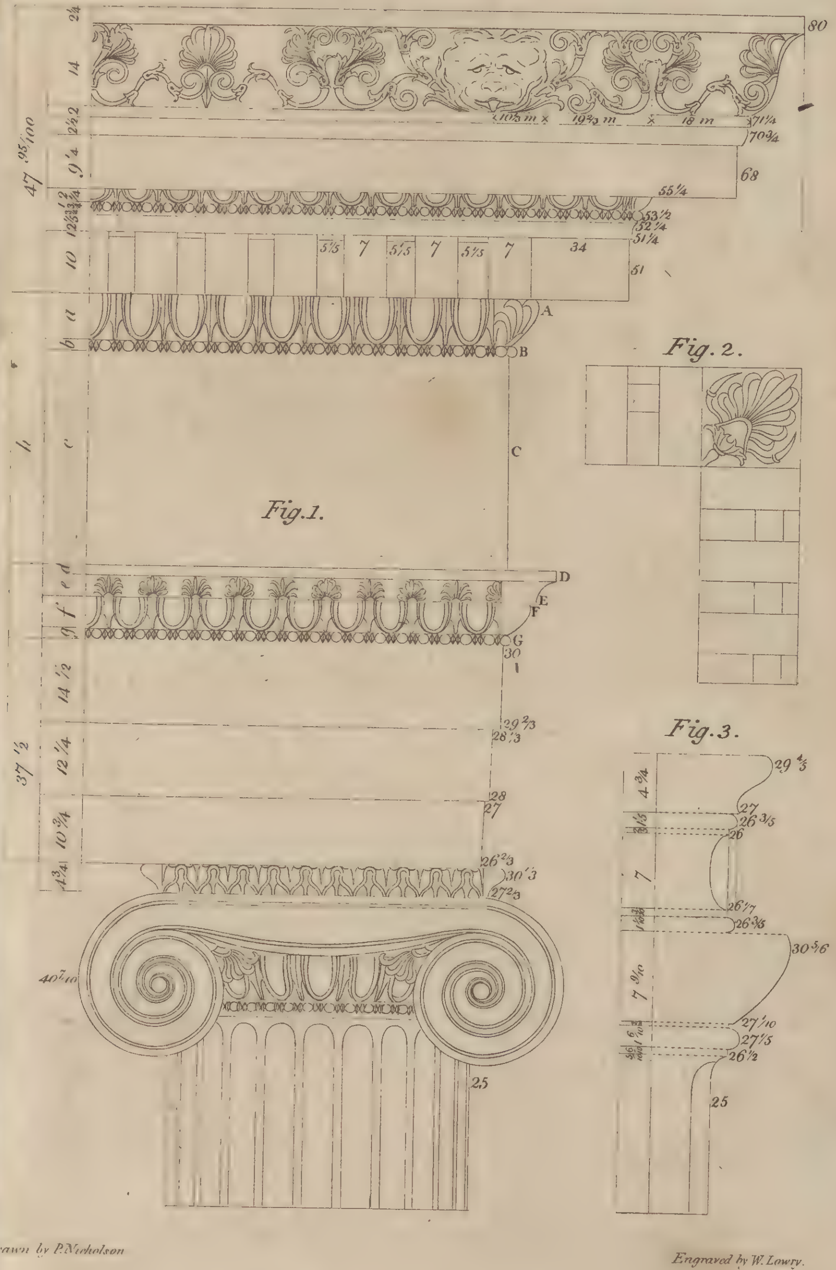
From the Temple of Minerva Polias.

P. Nicholson

Engraved by Cooke

GRECIAN ARCHITECTURE.

From the Temple of Minerva Polias.



Drawn by P. Nicholson

Engraved by W. Lowry.

London, Published June 1797, by P. Nicholson & C^o.

are a striking feature in this Order, show here to very great advantage, their bold and singular projecture greatly relieving them from each other.

The architrave is well proportioned to itself, and also to the cornice; the capital is elegant, and the spirals of the volutes are beautifully drawn.

The surprising delicacy of the ornaments, and their bold relief, with the grand ratio of the parts and mouldings to each other, renders this one of the most beautiful examples of the Ionic Order. I have, in this finished plate, taken some liberty in making the volutes larger than they really are, but have kept exactly to the taste of the original, as is shown by the next outline plate; where all the proportions of the original are marked in numbers, and the outline drawn exactly to these proportions. The Architect of this august Temple was Pytheus.

Plate 168.

The proportional measures in numbers.

Fig. 1. The entablature and capital of the columns.

Fig. 2. Ichnography of the denteles.

Fig. 3. Profile of the mouldings in the capital.

The parts which are marked with letters were not to be found in the original; some of the mouldings which are marked with letters were supplied by broken fragments which remained upon the cornice and architrave.

It is very probable, that under the denteles was an echinus and bead, as is marked *a* and *b* for their heights,

heights, and A and B at the projections; as these mouldings were found in the cornice of the pediment.

The cimatium or crown of the architrave was taken from the designs of Mr. Wood, who visited this temple before Mr. Rivett.

PLATE 169.

Capital of the column to a large scale.

PLATE 170.

Elevation of half the base of the column.

The base of the column is true Ionic; it has no plinth; the upper scotia is inverted, which diversifies and gives the contour a greater beauty than is in the Vitruvian base, in which the scotia are one over the other uninverted. The torus is elliptical and fluted.

The eyes of the volutes are bored two inches and a half deep*; the hem, or border, with its fillets resting on the echinus, and connecting with a graceful curve the spirals of the volutes, seeming to keep them secure in their place, adds greatly to the beauty of this capital.

PLATE 171.

Fig. 1. Side elevation of half the capital of the column.

Fig. 2. Ichnography of half the capital.

PLATE

* Perhaps for the convenience of fixing flowers and other apparatus, with which the antients were accustomed to adorn their temples, on days of festivity or public solemnity.

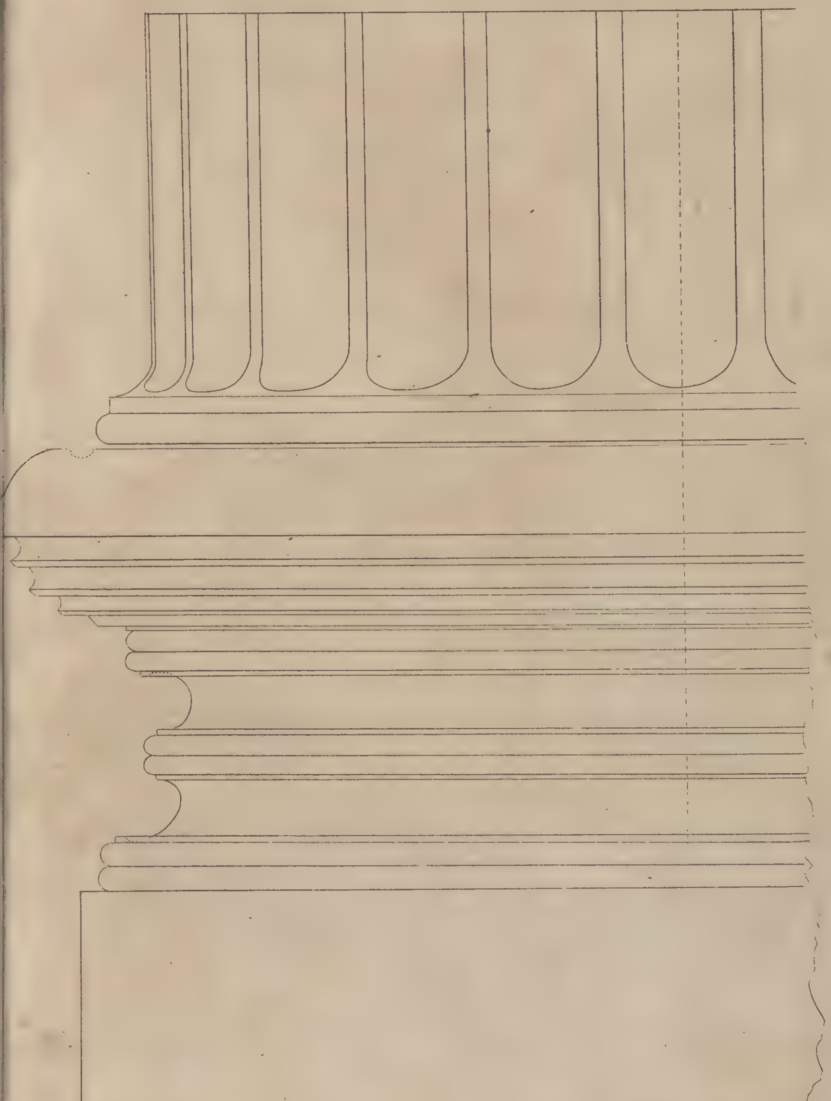
GRECIAN ARCHITECTURE

From the Temple of Minerva Polias at Priene.

... by P. Nicholson. Engraved by Reffe

GRECIAN ARCHITECTURE.

From the Temple of Minerva Polias at Priene.



rawn by P. Nicholson

Engraved by Roffe

London, Published by P. Nicholson & C.o April, 1798.

GRECIAN ARCHITECTURE.

From the Temple of Minerva Polias at Priene.

Fig. 1.

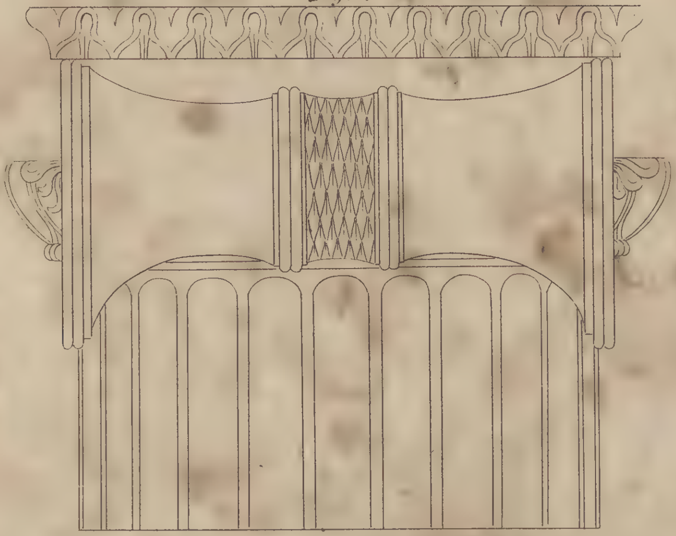
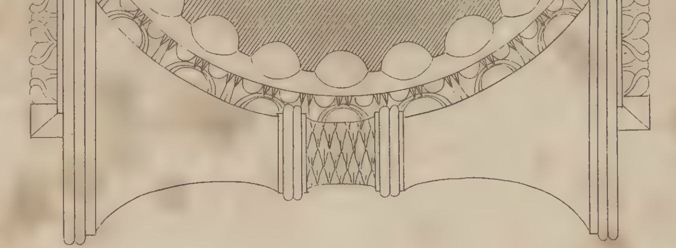


Fig. 2.



n by P. Nicholson

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GRECIAN ARCHITECTURE

From the Temple of Minerva Polias at Priene.

Fig. 1.

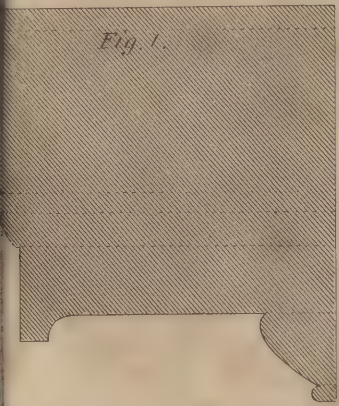

Fig. 2.

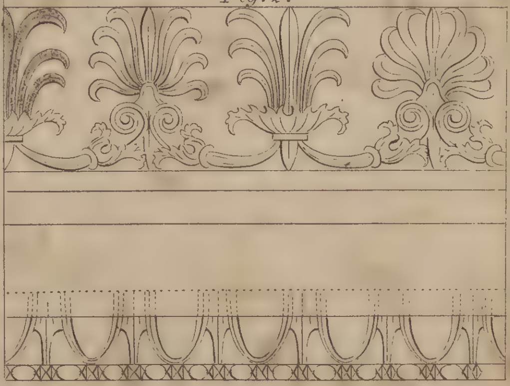

Fig. 3.

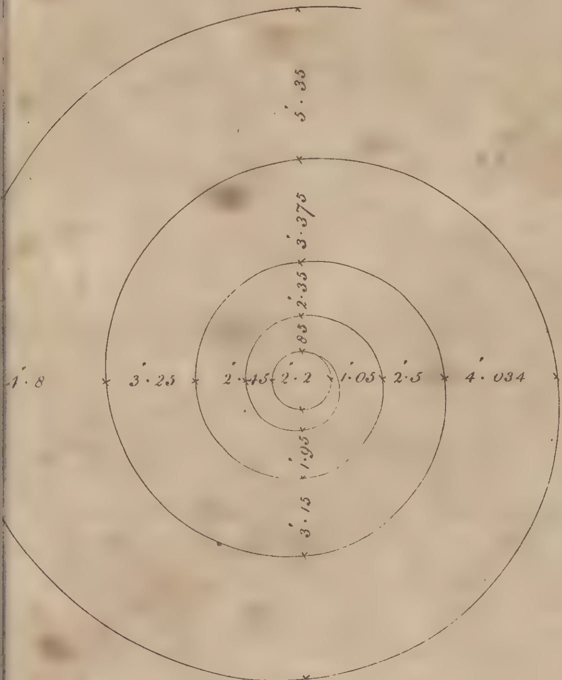

Fig. 4.

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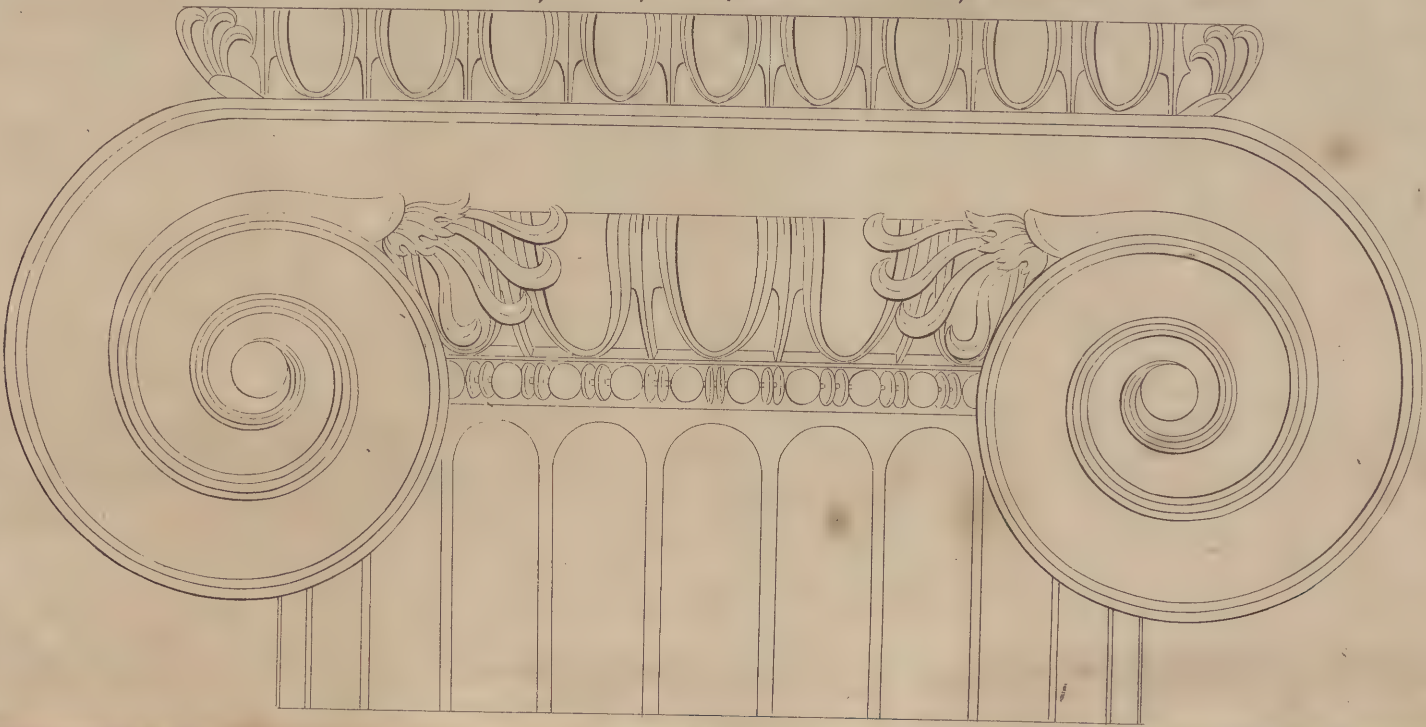
GRECIAN ARCHITECTURE

From the Temple of Apollo Didymæus.



173.

Drawn by P. Nicholson

Plate 172.

From the Temple of Minerva Polias, at Priene.

Fig. 1. Section through the cornice of the pediment.

Fig. 2. Front of the cornice, showing the ornaments on the mouldings.—It is remarkable that the enrichment of the upper moulding differs from that on the lateral cornice.

Fig. 3. Volute with the measure in feet, inches, and tenths.

Fig. 4. A section through the upper torus of the base, which is of an elliptical form, the transverse axis being inclined to the plane of the horizon.

EXAMPLE IV. Plate 173.

The Remains of the Temple of Apollo Dedymus, near Miletus, in Ionia.

Capital of the column to a large scale.

PLATE 174.

Fig. 1. Ichnography of half the capital.

Fig. 2. Side elevation of the capital.

PLATE 175.

Elevation of half the base of the column.

ROMAN IONIC.

EXAMPLE I. PLATE 176.

From the Temple of Fortuna Virilis, at Rome.

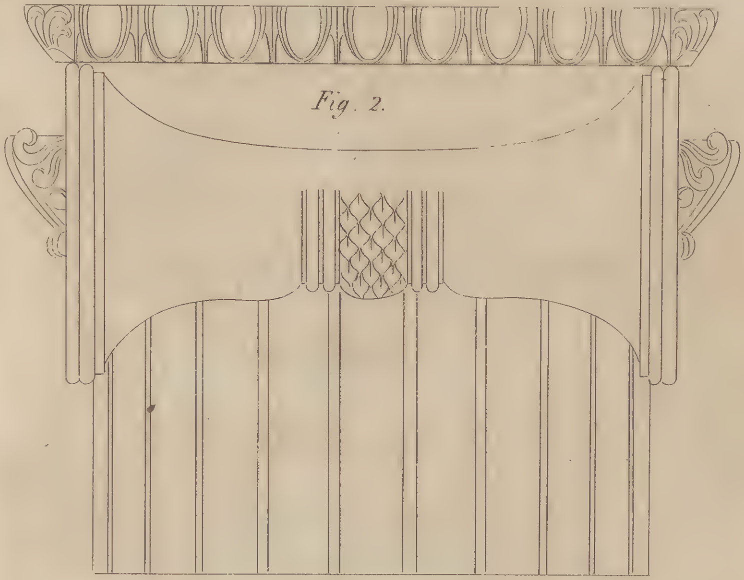
Near the Senatorium Bridge, now called the Bridge of St. Mary, stands the church of St. Mary the Egyptian: some imagine it to be the temple of Fortuna Virilis, or Manly Fortune.

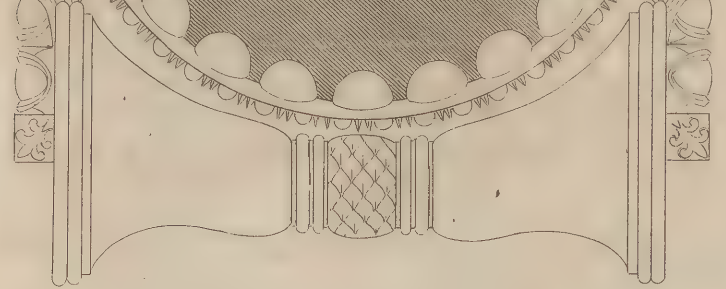
This example has been looked upon by some as one of the finest models of the Ionic Order now existing; but as none of those who have held it in such veneration had ever seen any of the original Grecian examples, it is not to be wondered that they have passed such high encomiums on it; for certainly it is upon the whole preferable to any other of the antique examples remaining at Rome, notwithstanding it has some very great imperfections.

The

GRECIAN ARCHITECTURE

From the Temple of Apollo Dedymus.





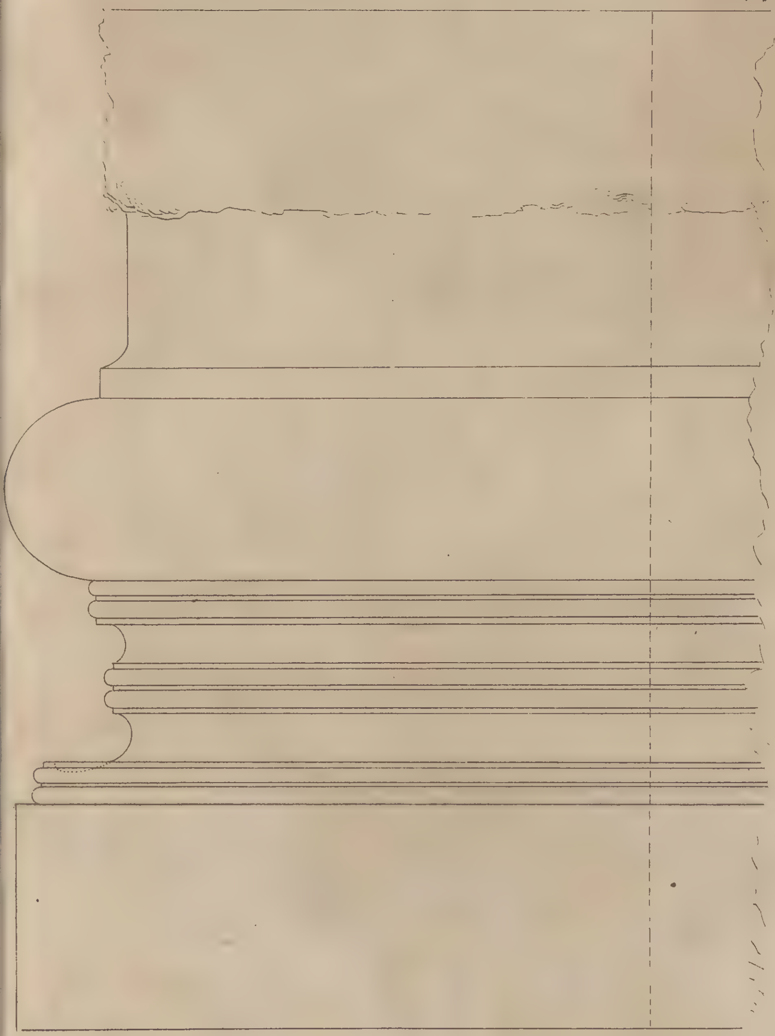
Drawn by P. Nicholson

Engraved by Roffe

London, Published by P. Nicholson & C.º April 1798

GRECIAN ARCHITECTURE

From the Temple of Apollo Dedymæus near Miletus.



Drawn by P. Nicholson

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ROMAN ARCHITECTURE

From the Temple of Fortuna Virilis at Rome.

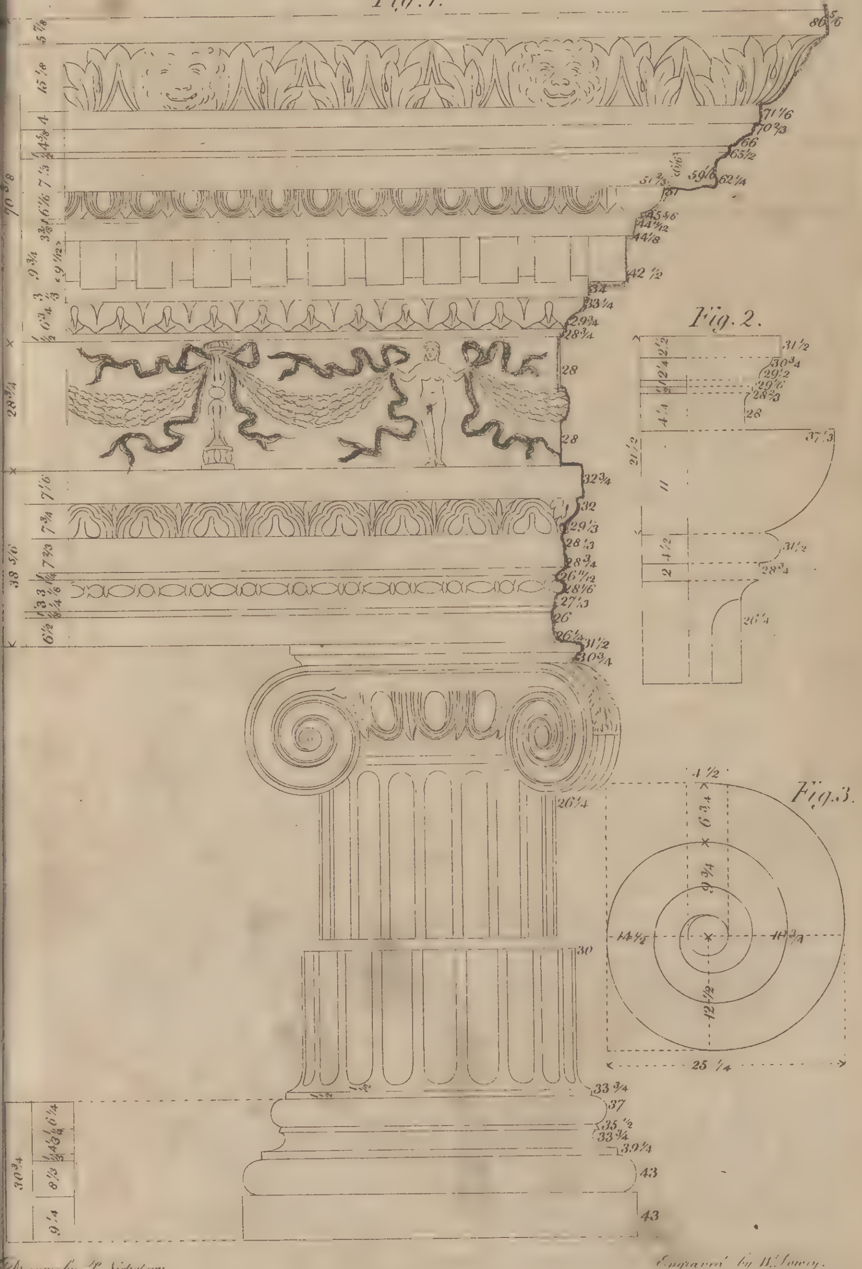
…wn by P. Nicholson. Engraved by Cosmo Armstrong

London. Published by P. Nicholson & C.° Aug.st 1797.

ROMAN ARCHITECTURE

From the Temple of Fortuna Virilis at Rome.

Fig. 1.



Drawn by P. Nicholson. *Engraved by W. Lowry.*

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ROMAN ARCHITECTURE

rom the Temple of Fortuna Virilis at Rome

Fig. 1.

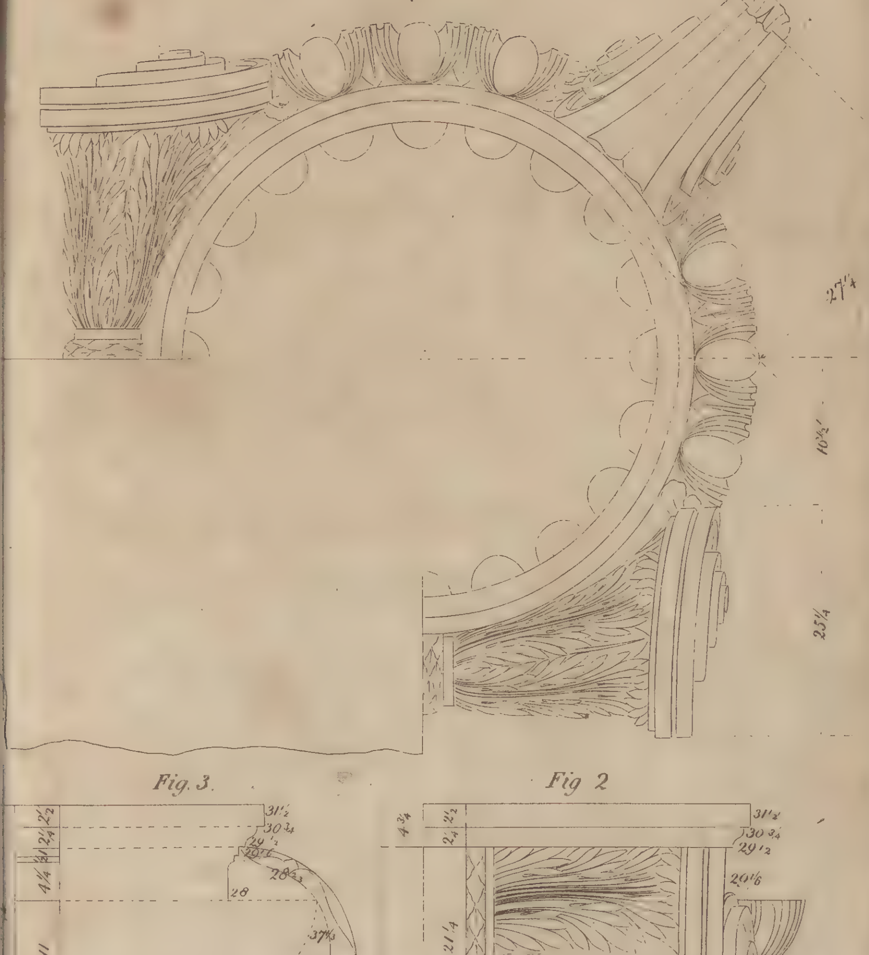


Fig. 3.

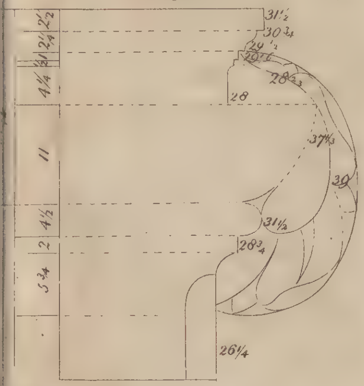
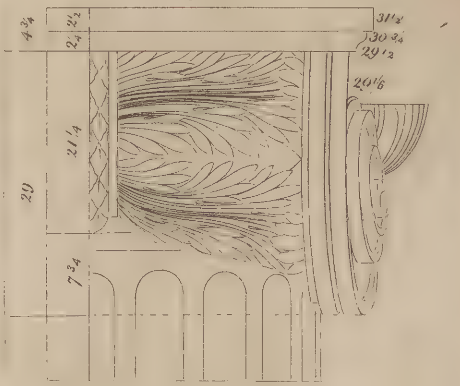


Fig 2



London. Published by P. Nicholson & Co. Novr. 1797.

The cornice is much too high, or overcharged with moulding, for the height of the entablature, which makes the architrave and frize too low; the capitals are very indifferently wrought; Desgodetz speaks of them in his Roman antiquities in the following words: "The contour of the volute which I have drawn is "not the same in all; for they differ, some being "made of stucco, some more round, others somewhat "pendant." The architrave is singular, having an astragal near the middle of the second band, which has a very good effect; the bands of the architrave are too much contracted for the mouldings.

Plate 177.

The proportional measures in numbers.

Fig. 1. Entablature, capital, and base of the columns.

Fig. 2. Profile of the capital, with the projections.

Fig. 3. Contour of the volute, with the proportional measures of the spiral.

Plate 178.

Fig. 1. Ichnography of the capital inverted.

Fig. 2. Elevation of half the side of the angular capital.

Fig. 3. A section through the middle of the side of the capital.

EXAMPLE II. Plate 179.

From the Theatre of Marcellus, at Rome.

This Theatre was built by Augustus, to immortalize the memory of Marcellus, son of his sister Octavia. The inside of the edifice has been demolished, and is at present occupied by the Palace Savelli; there remain only part of the outside wall, and the outer corridor or portico of the circular part.

The upper part of the cornice of this example is entirely ruined; the cornice, frize, and architrave, are better proportioned than the cornice, frize, and architrave of the temple of Manly Fortune, at Rome; but the proportion of the capital, and its parts, is by no means so beautiful as in that example.

In the capital of this example the outer revolution of the volutes is elliptical, but the two inner revolutions are nearly circular; which renders the contour irregular, and the outline of the volutes very disagreeable to the aspect.

Plate 180.

The proportional measures in numbers:

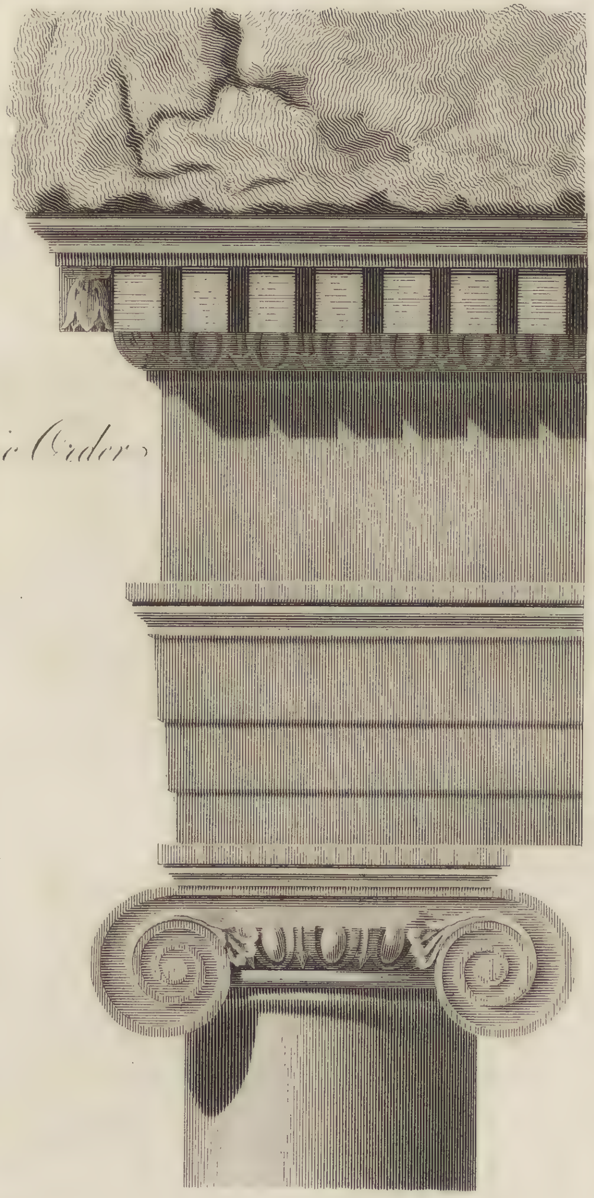
Fig. 1. The entablature and capital of the columns and the upper part of the cornice, are here supplied by the authority of Mons de Chambrey's example of this Order; but the proportions of the members of this ad-

dition

ROMAN ARCHITECTURE

From the Theatre of Marcellus at Rome.

Ionic Order.



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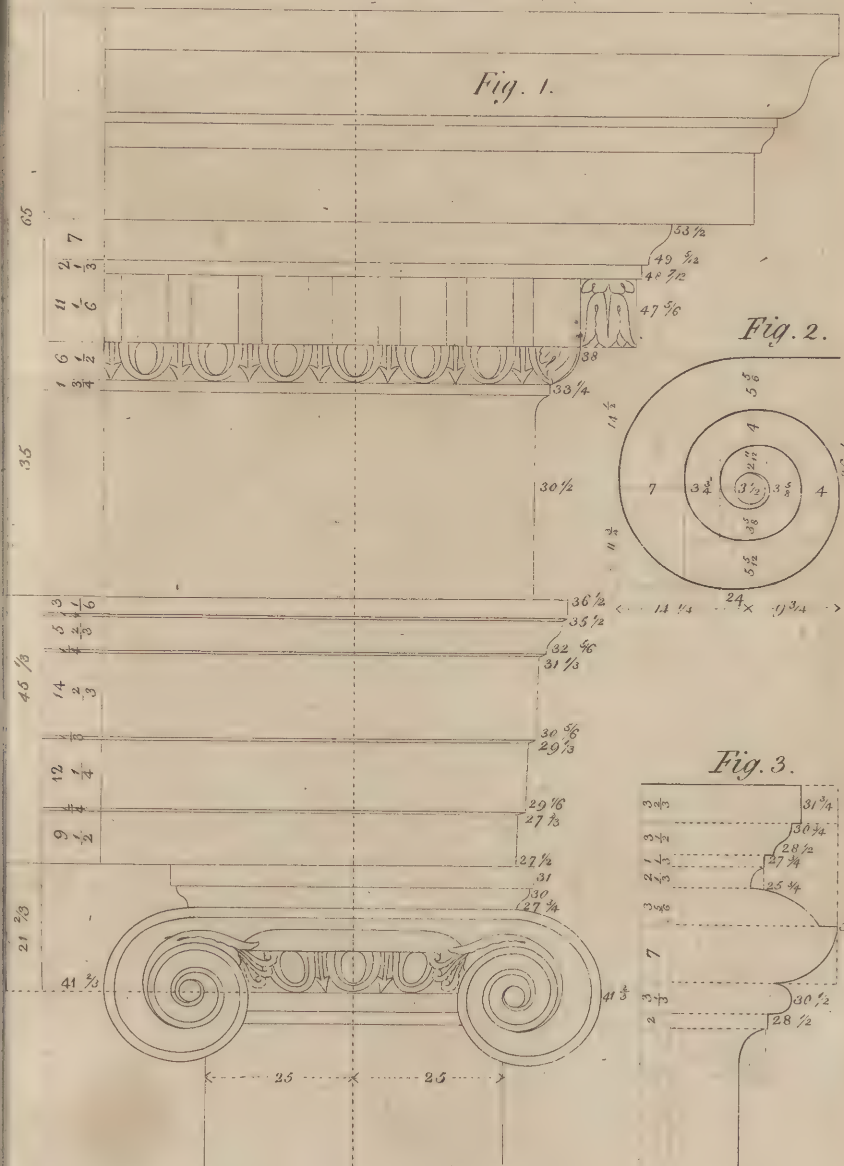
ROMAN ARCHITECTURE

From the Theatre of Marcellus at Rome.



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1.

ROMAN ARCHITECTURE

From the Temple of Marcellus at Rome.

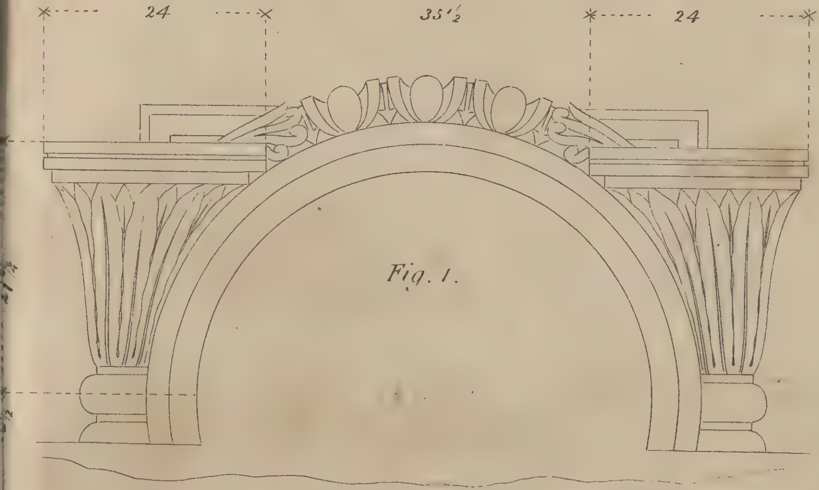


Fig. 1.

Fig. 3.

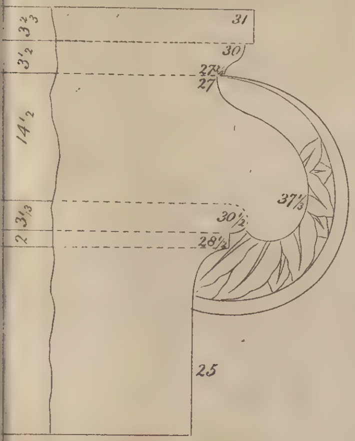
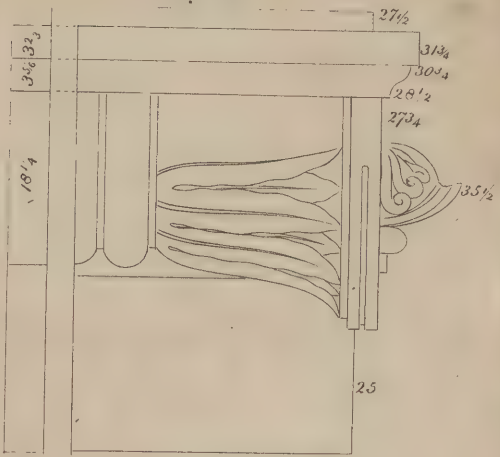


Fig. 2.



…n by P. Nicholson

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London Published by P. Nicholson & Co. Novr. 1797.

ROMAN ARCHITECTURE

From the Temple of Concord at Rome

Drawn by P. Nicholson

Engraved by Roffe

London. Published by P. Nicholson & C^o. Nov^r. 1797.

dition cannot be depended on, although correct with regard to their true kind of mouldings.

Fig. 2. The outer spiral of the volute drawn to a larger size, with its proportions.

Fig. 3. A section through the middle of the front of the capital, by a vertical plane perpendicular to the frize, showing the contour of the mouldings.

The inverted ovolo, shown over the echinus, is singular, and it is not easy to conceive for what purpose it could be intended; as it cannot be seen very near to the building, on account of the projection of the echinus below, and its contour will be entirely lost and confused at a distance.

Plate 181.

Fig. 1. Ichnography of the capital inverted.

Fig. 2. Elevation of the side of the capital.

Fig. 3. A section through the middle of the side of the capital.

EXAMPLE III. Plate 182.

From the Temple of Concord, at Rome.

This is a singular example; the cornice has mutules or modillions, resembling the Doric Order, and also denteles as in the Ionic. There are no architrave mouldings on the front of the portico of this temple, nor on one of its sides; the architrave on the other side is entirely sunk within the plane of the frize; each face

face of the capital of the column is alike; that is, the sides are the same as the fronts; the abacus is curved, each two volutes meet together at every angle of the abacus, which is not to be met with in any other antique example whatever; the volutes in the capital are much too small, and the annular mouldings are too much multiplied, and too great for the volutes, which renders this capital clumsy, and its aspect displeasing to the eye; the columns have no plinth, excepting the two extreme ones. This edifice is thought to be the Temple of Concord, built by F. Camillus, and stands at the entrance of the Roman Forum, near the Arch of Septimus Severus.

Plate 183.

The proportional measures in numbers.

Plate 184.

Fig. 1. Soffit of the cornice.

Fig. 2. Half the base of the exterior columns, which have plinths.

Fig. 3. The base of the columns between the two extreme columns.

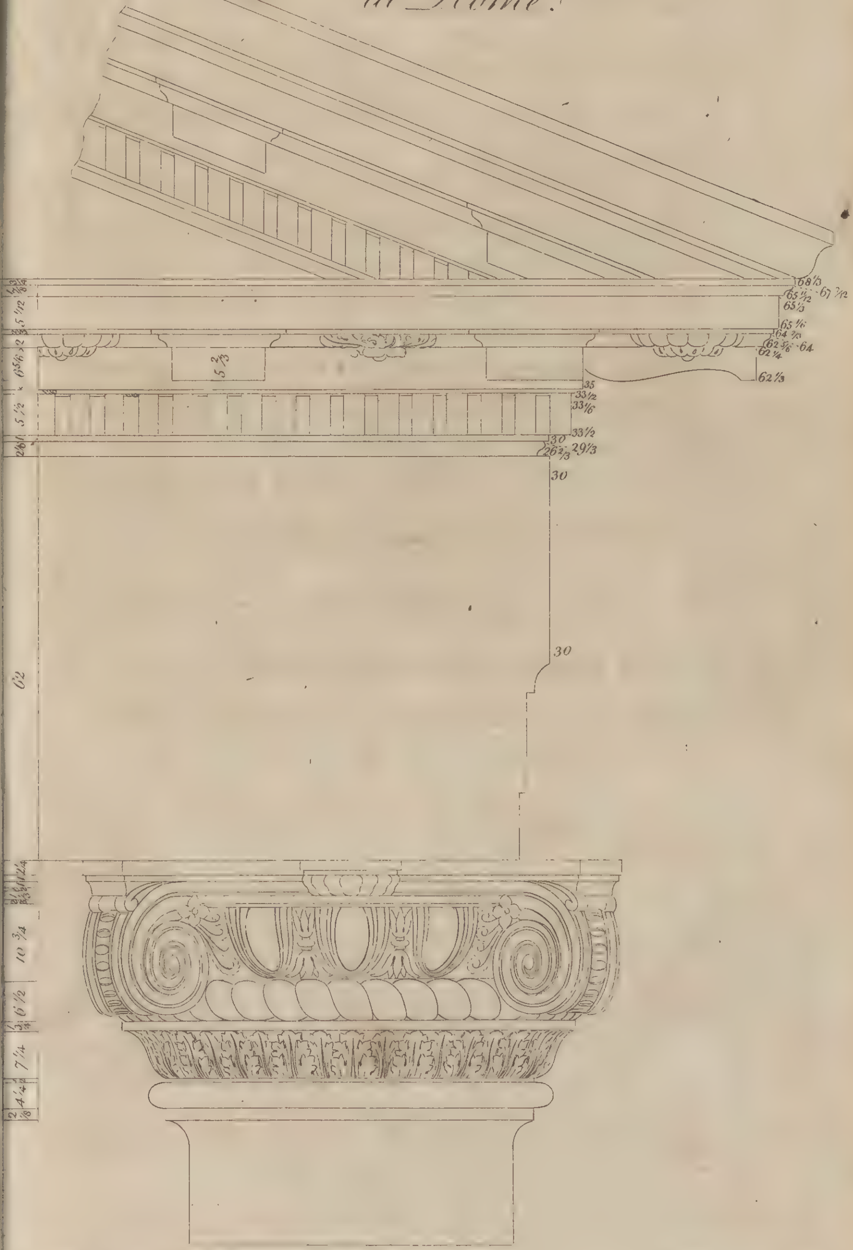
Plate 185.

Fig. 1. Ichnography of the capital inverted.

Fig. 2. Front of the capital.

ROMAN ARCHITECTURE.

From the Temple of Concord at Rome.



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ROMAN ARCHITECTURE

From the Temple of Concord at Rome.

Fig. 1. Soffit of the Cornice.

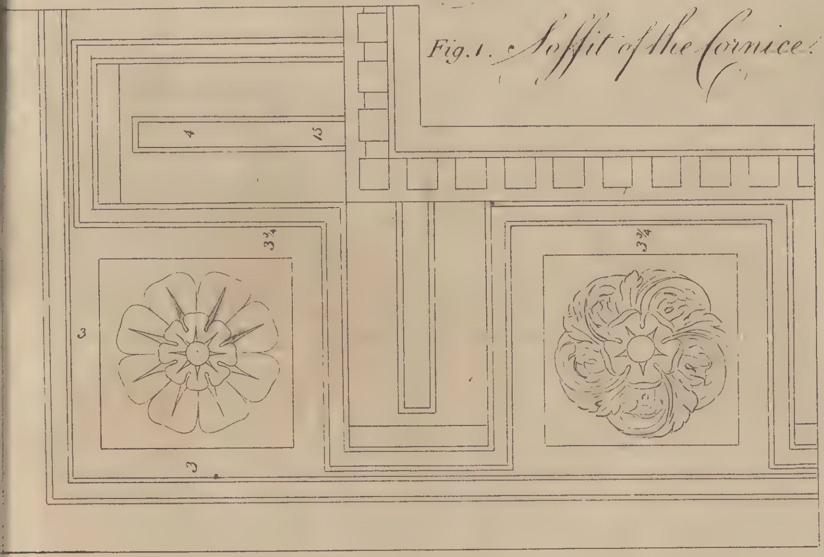
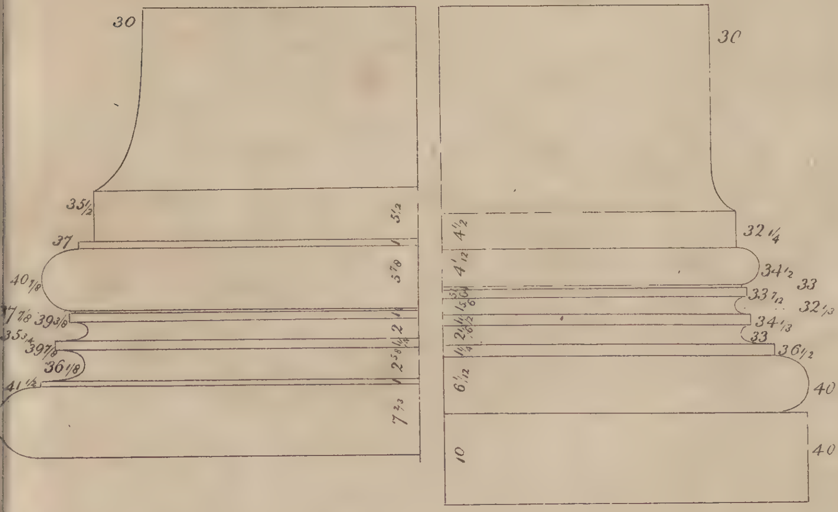


Fig. 3.　　Fig. 2.



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ROMAN ARCHITECTURE

From the Temple of Concord at Rome.

Fig. 2.

Fig. 1.

Nicholson.

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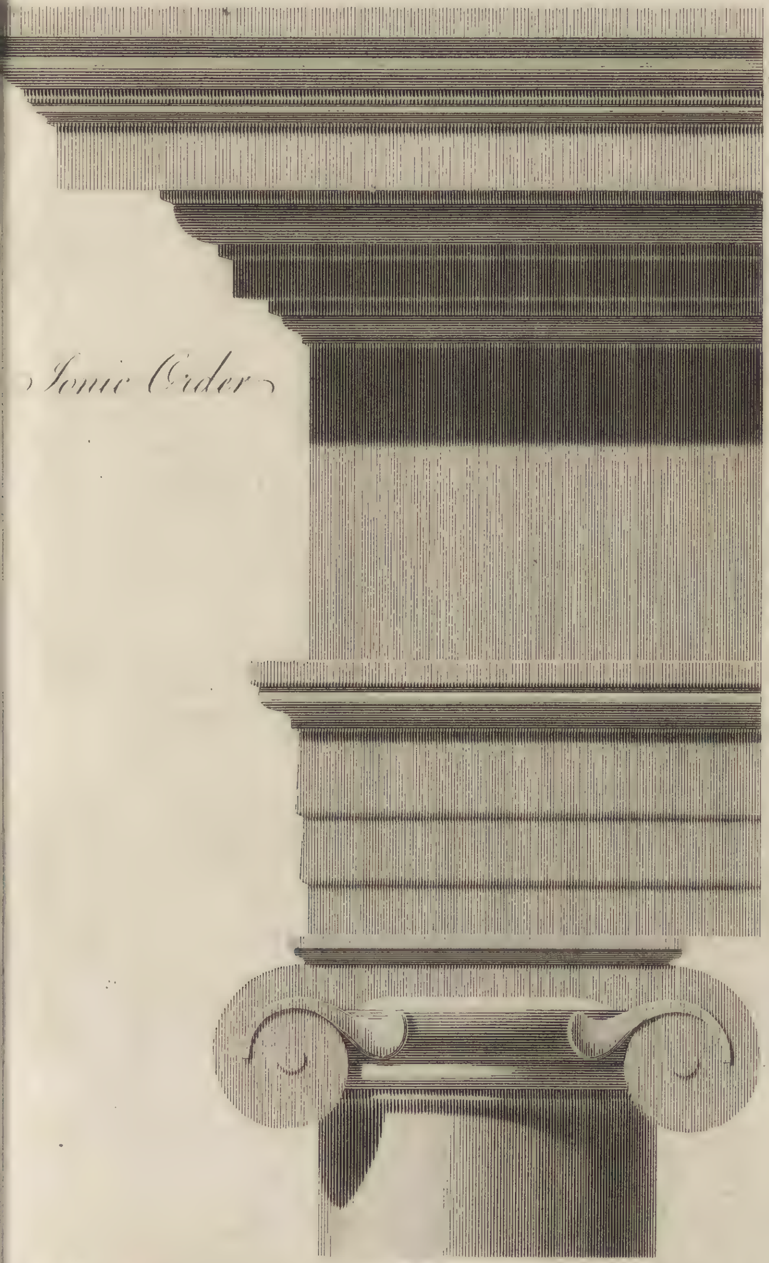
ROMAN ARCHITECTURE

From the Coliseum at Rome.

Ionic Order



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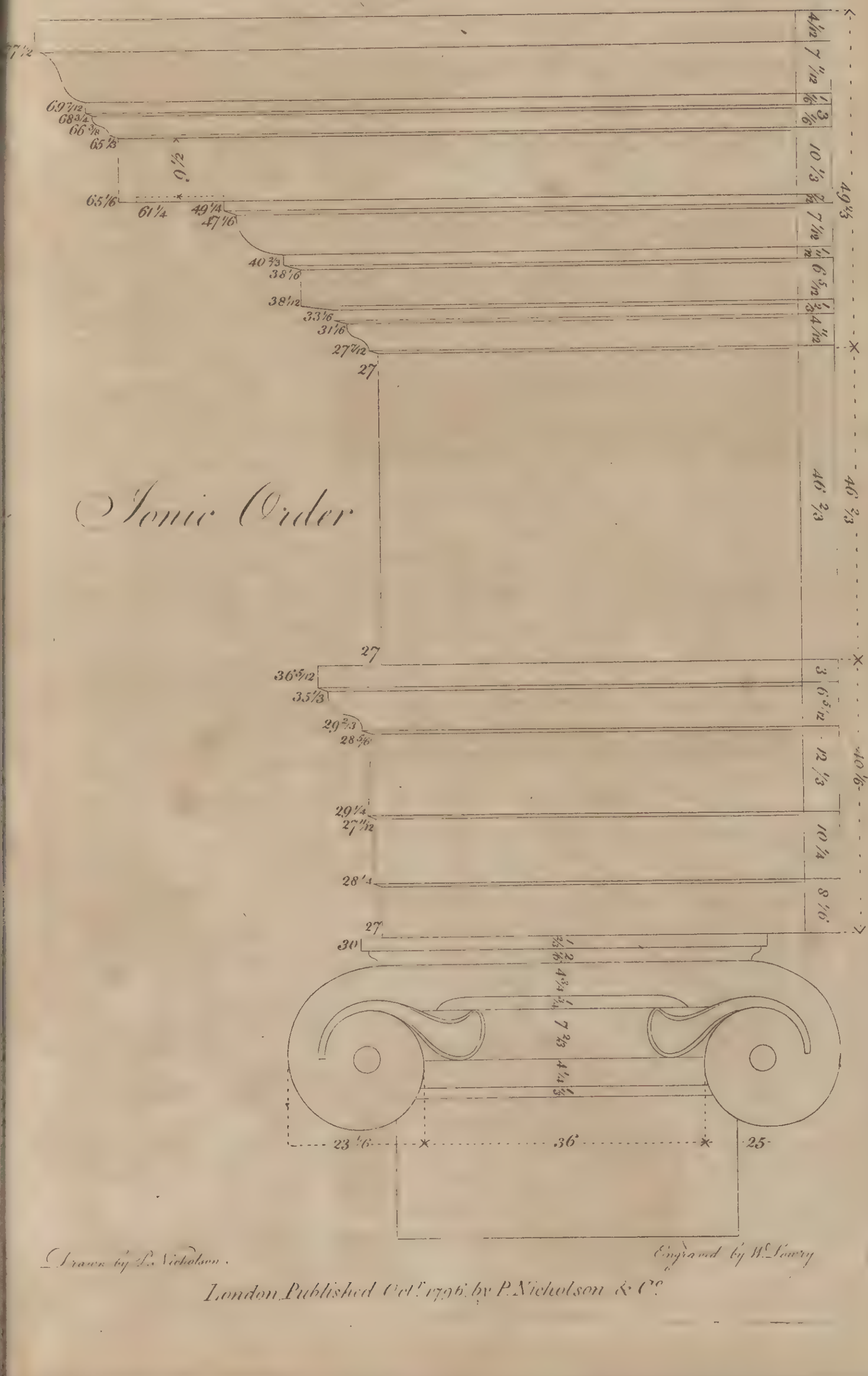
ROMAN ARCHITECTURE

From the Colosseum at Rome



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EXAMPLE V. Plate 186.

From the Amphitheatre at Rome, called the Coliseum.

The cornice and architrave of this example is too abundant with mouldings, which makes them appear too small and insignificant when compared with the magnitude of the building ; the general proportion of the entablature is pleasing, the volutes in the capital are not cut more than one revolution and a quarter ; but this is quite sufficient, when it is considered that they are placed at a very great height, and that they would appear too trifling when compared with such a colossal building. The parts of this edifice are very inaccurately wrought, Desgodetz speaks of them as follows : " It must be understood, that the parts of this " edifice are not very exactly executed, and that the " mouldings have various heights in various places."

This amphitheatre was built by the emperors Vespasian and Titus in the middle of antient Rome, on the spot where Augustus had formed a design of building one.

Fifteen thousand men are said to have been employed on it for ten years.

Plate 187.

The proportional measures in numbers.

PROB.

PROBLEM I.

To find, from the remains of antient buildings, any example or examples, on which may be founded an Ionic Order of the most graceful proportions, corresponding to the character of the original.

In the Roman Ionic, on the Temple of Manly Fortune, its overloaded cornice, disproportionate entablature, inelegant profile, and the broken spiral lines of its volutes, render it very unfit for a model for establishing the proportions of the Ionic Order.

In the Ionic of the Theatre of Marcellus, its defective and mutilated cornice, the littleness of the capital of its column, the broken and inelegant spiral lines composing the volutes, likewise render this example unfit for establishing the proportions of the Ionic Order; neither is the unfinished example on the Amphitheatre of Vespasian, nor the compounded Ionic Order of the Temple of Concord with its clumsy capital to be brought forward as models.

Now, since we cannot find among the Roman edifices any example which will answer our purpose, let us see whether or not we shall be more successful in discovering, in the remains of Grecian antiquities, any examples on which we may restore the Ionic Order to its primitive form.

The little Ionic Temple on the River Ilissus, at Athens, is a beautiful and bold example; its proportions

tions are grand; but it cannot be said to be perfect, as the denteles, which characterize the cornice of an Ionic Order, are wanting; it is therefore incomplete.

The same may be said of that elegant example of the Ionic Order, the Temple of Erectheus, at Athens; but the beauty and grandeur of the capital render this far superior to any of the Roman, and not inferior to any other of the Greek examples.

Let us then see in the place of its origin, whether or not we shall be more fortunate in finding a complete example.

In the Temples of Bacchus and Minerva Polias, both in Ionia, are some of the first examples erected of this Order, and which are complete in all their parts; their beautiful proportion, the graceful curves and diversified forms of their mouldings; the greatness and majesty of their parts, their judicious arrangement, and the graceful spiral lines of their volutes, render them correct. These elegant specimens I would recommend as a standard.

OF THE

CORINTHIAN ORDER.

DEFINITIONS.

I. An Order which has two annular rows of leaves in the capital, each leaf of the upper row growing between those of the lower row, in such a manner that a leaf of the upper row, may be in the middle of each side or face of the capital; and if between each space of the upper leaves there spring stalks with volutes, two of which meet at the angles of the abacus, and two in the middle of the capital, either touching or interwoven with each other; a capital so constructed is called Corinthian.

II. An Order which has a Corinthian capital, and an Ionic or any other entablature, is called the Corinthian Order.

Pl.

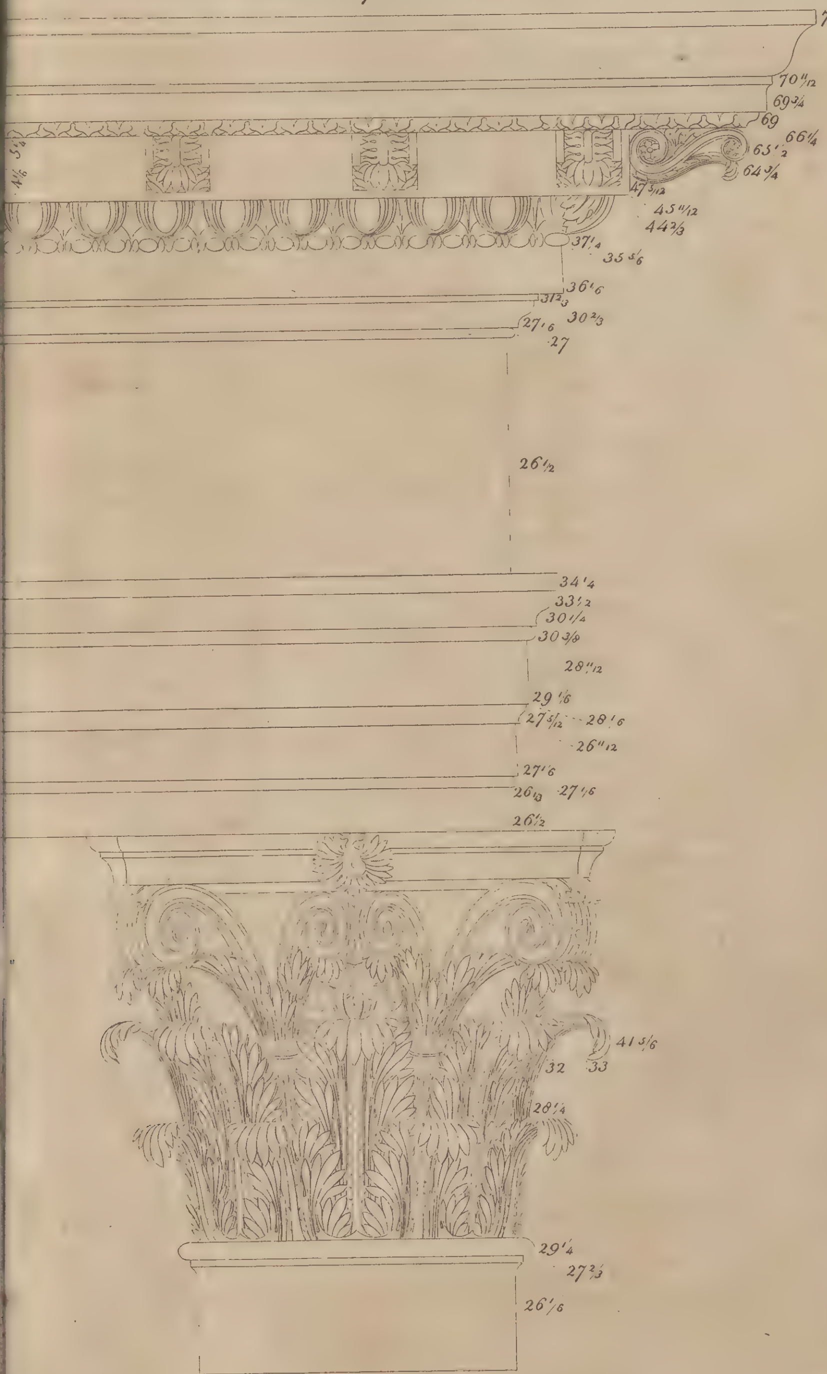
ROMAN ARCHITECTURE

From the Portico of the Pantheon at Rome

Drawn by P. Nicholson. *Engraved by W. Low*

ROMAN ARCHITECTURE

From the Portico of the Pantheon at Rome.



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London Published by P. Nicholson & Co. Aug.st 1797.

8

Pl. 190.

ROMAN ARCHITECTURE

Fig. 1.

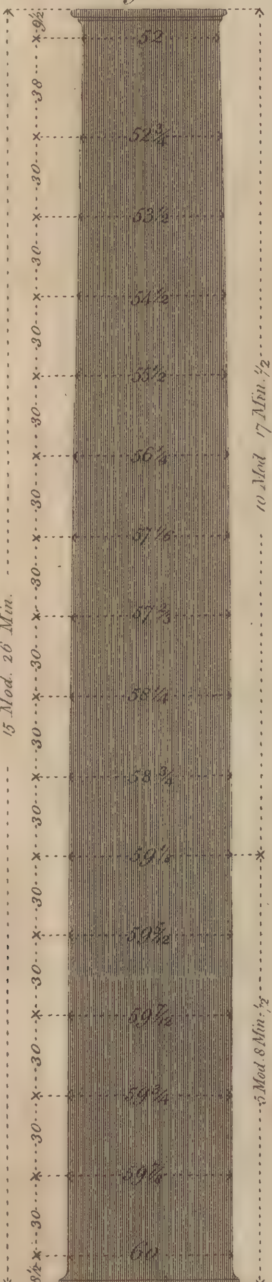


Fig. 2.

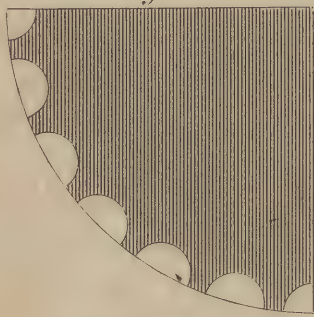


Fig. 4.

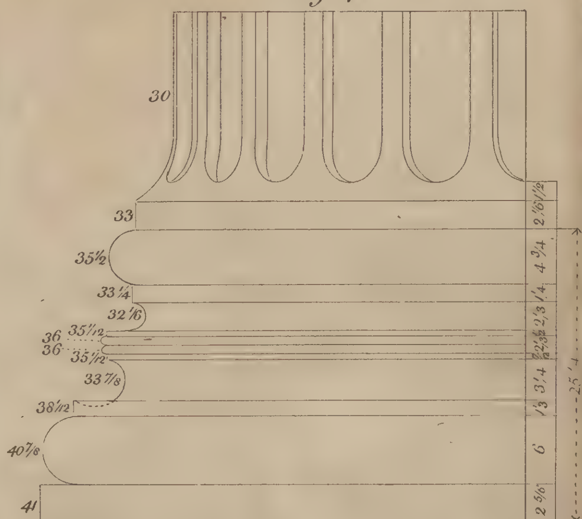
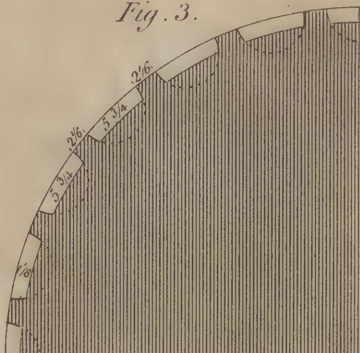


Fig. 3.



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EXAMPLE I. Plate 188.

The Corinthian Order, from the Pantheon, at Rome.

This example, though plain, is yet beautiful and chaste, and is an excellent model of the Order.

Plate 189.

Proportion of the parts in numbers.

Plate 190.

Fig. 1. The proportion of the columns within.

Fig. 2. A section of one quarter of the column next to the capital.

Fig. 3. A section of one quarter of the column next to the base.

Fig. 4: Elevation of half the base of the same columns.

EXAMPLE II. Plate 191.

From the three Columns in the Campo Vaccino, supposed to be the Remains of the Temple of Jupiter Stator, at Rome.

The engraving exhibited in this plate, of that celebrated example of the remains of Jupiter Stator, is more accurate than any yet published ; the capital and entablature are restored from the drawings of an artist,* who was so obliging as to favour me with sketches of the ornament which he had from the original. The elegance and beauty of the capital ; its graceful form ; the grandeur and excellent proportion of the entablature, with the delicacy of the ornament, render this one of the most complete examples now existing of the Corinthian Order.

Plate 192.

Proportion of the parts in numbers.

* Mr. Tatham.

Pl.

ROMAN ARCHITECTURE

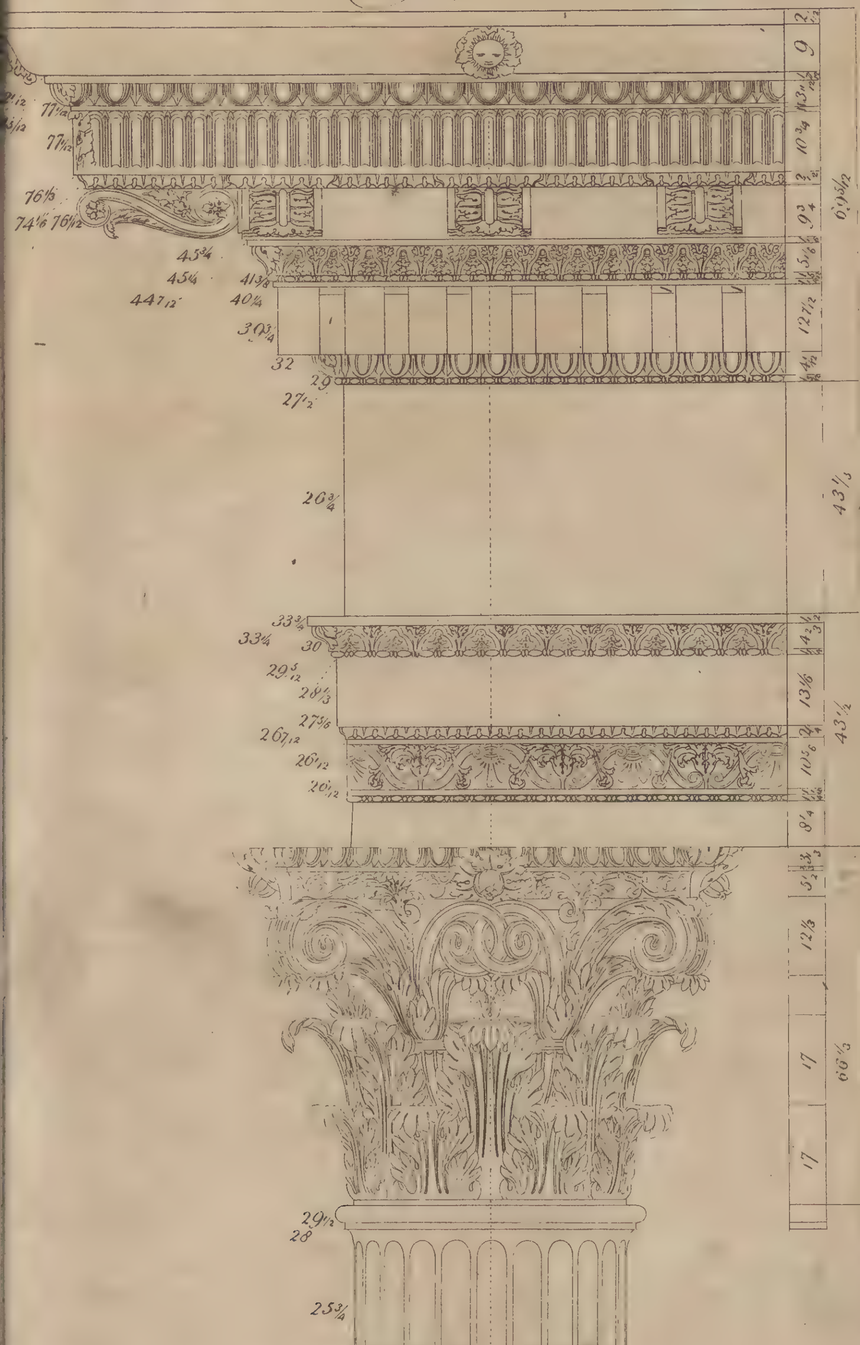
From the Temple of Jupiter Stator at Rome.

...awn by P. Nicholson.   *Engraved by W. Law...*

London Published by P. Nicholson & C^o. March ...

ROMAN ARCHITECTURE

From the Temple of Jupiter Stator at Rome.



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Engraved by W. Lowry.

London, Published by P. Nicholson & C.o Feb.y 1798.

THE

TUSCAN ORDER.

This Order is almost the same as the Doric, and is evidently derived from it; it was used first by the inhabitants of Tuscany, from whom it had its name.

EXAMPLE I. Plate 193.

From Vitruvius, with the Proportion of the Parts.

We have no complete example of this Order remaining from antique buildings; and all that we know of it is from the description of Vitruvius, from which this example is taken, and is therefore the only standard.

The proportions of the parts are exhibited by equal divisions on the plate.

That celebrated building, St. Paul's Covent Garden, is the only true specimen we have of the Tuscan Order in this country. It may be adapted with great propriety

priety to Market-places, as the simplicity of its parts, and the extraordinary projection of the cornice, renders it suitable for that purpose.

Fig. 1. The elevation of the column and entablature.

The column is seven diameters high; the base and capital are each half a diameter; the base is divided into two equal parts, one of which is given to the plinth, *(l)* the other to the torus *(k)* and fillet; divide the capital into three equal parts, give one to the hypotrachelion *(f)*, one to the ovolo *(e)* and fillet, and the upper one to the abacus. The mutules in the cornice are to project one fourth of the length of the column.

Fig. 2. The profile of the base to a larger size.

Fig. 3. The profile of the capital to a larger size.

Fig. 4. Ichnography of the mutules in the cornice inverted C, C, C, &c. the mutules.

Fig. 5. Profile of the upper part of the cornice to a larger size.

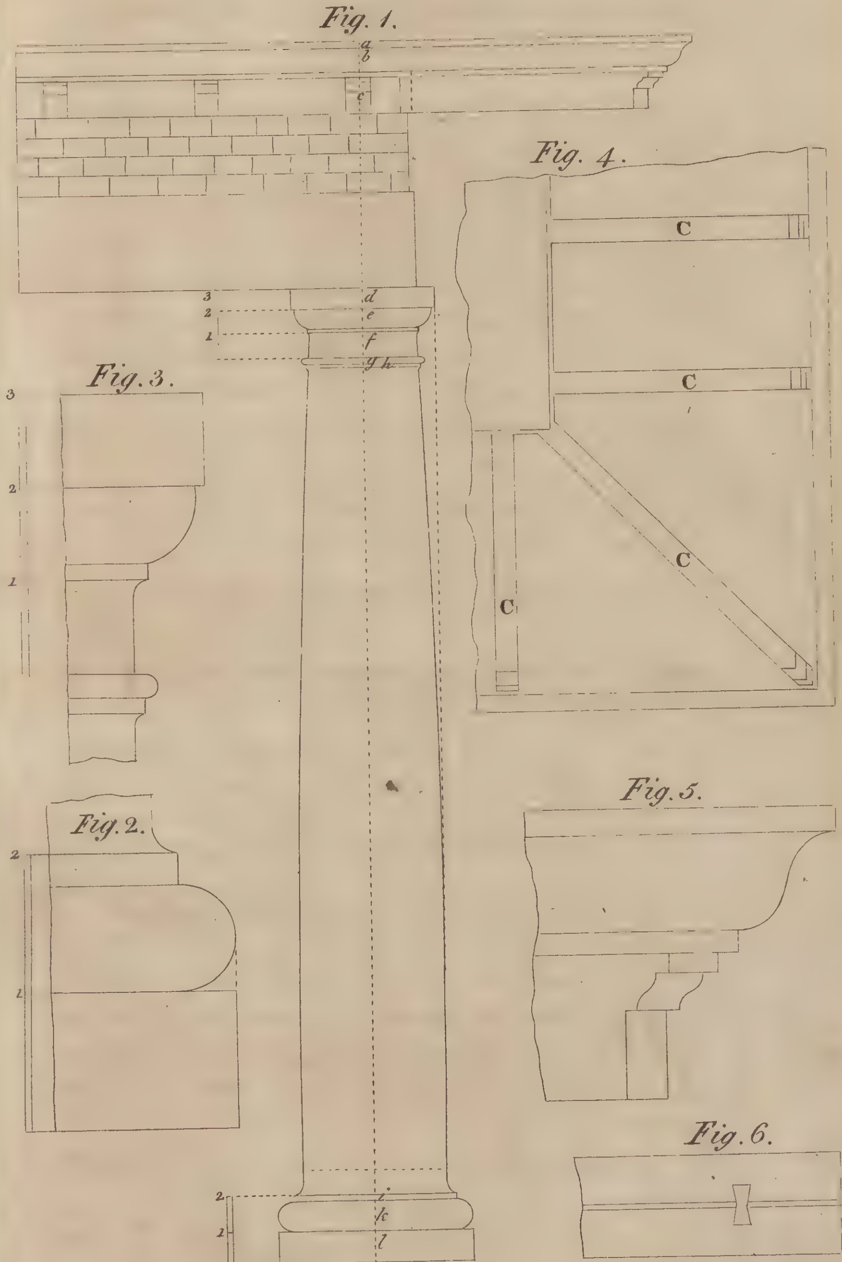
Fig. 6. Manner of joining the beams of the architrave together.

EXAMPLE II. Plate 194.

From Trajan's Column, at Rome.

This example of a Tuscan column, though antient, is not sufficient for restoring the Tuscan Order, as the entablature is wanting; therefore, to construct the true Tuscan Order, we must still have recourse to the first example. It may be observed, that if instead of the astragal

A VITRUVIAN TUSCAN.



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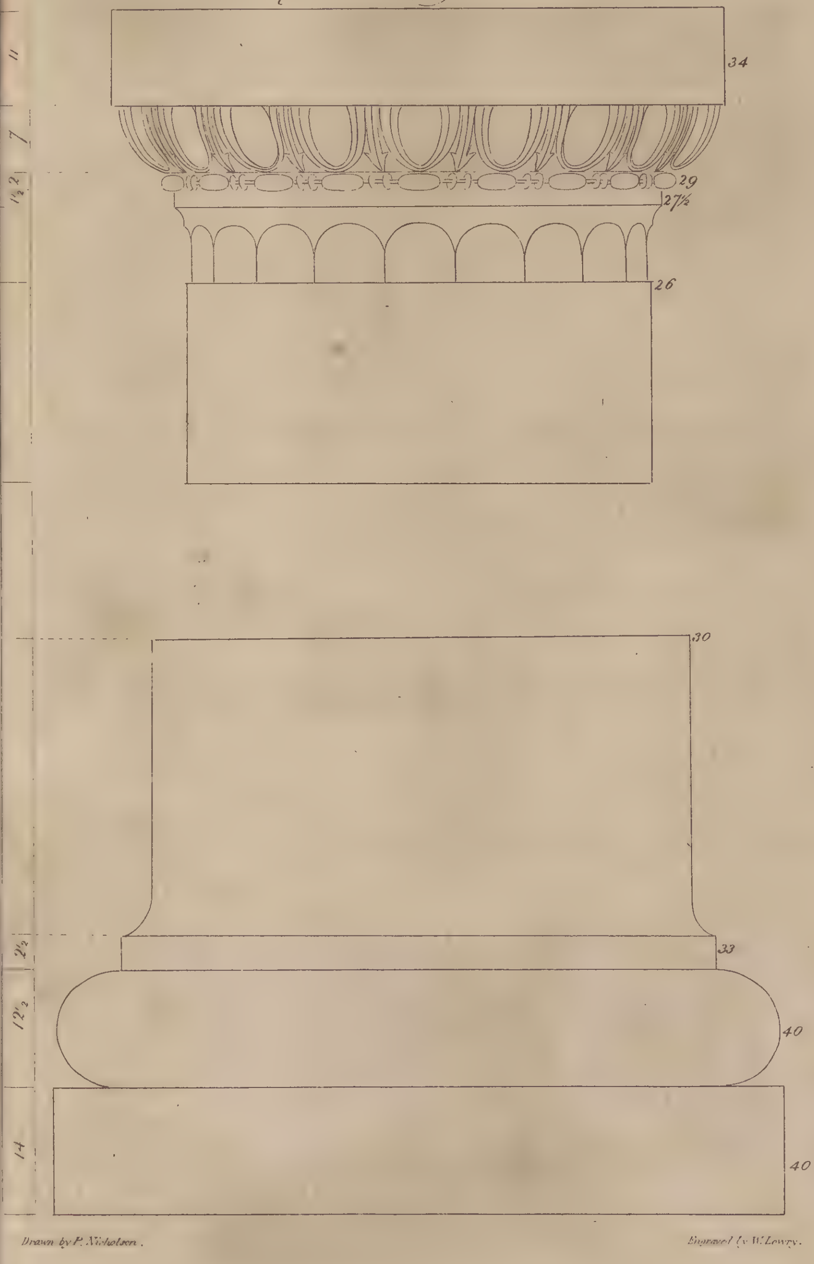
ROMAN ARCHITECTURE

From Trajan's Column at Rome.



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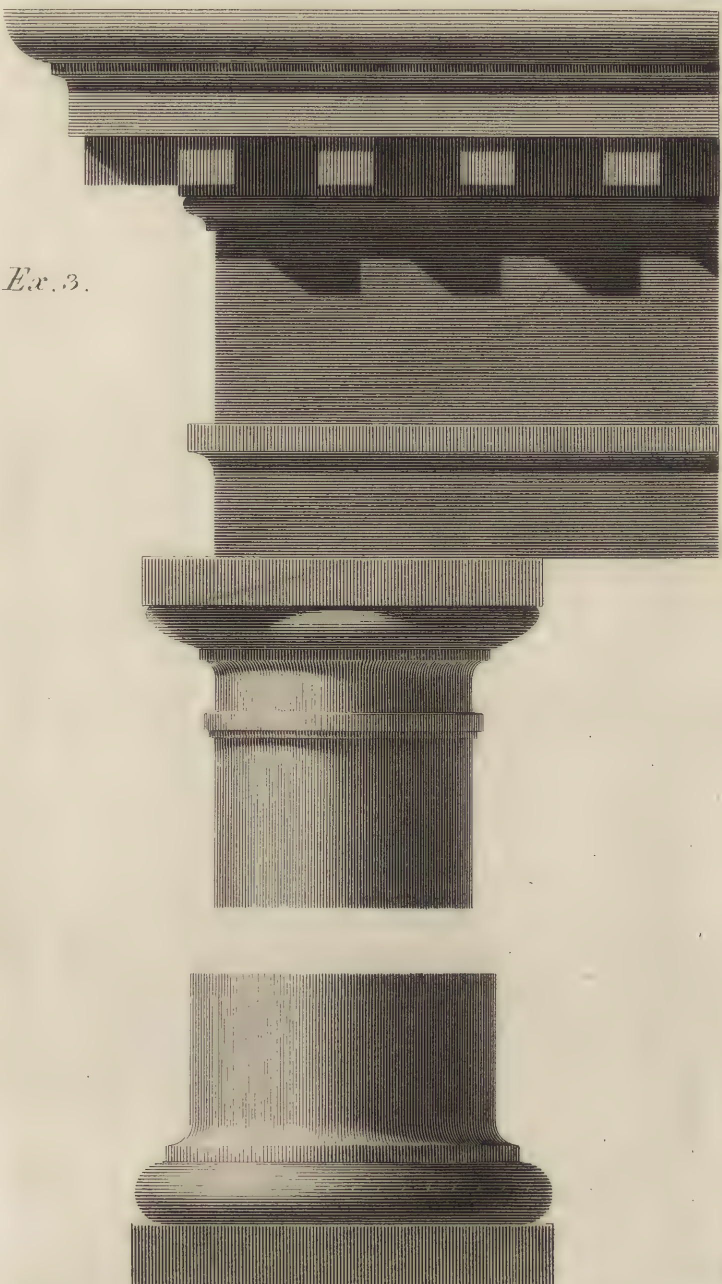
Tuscan Order

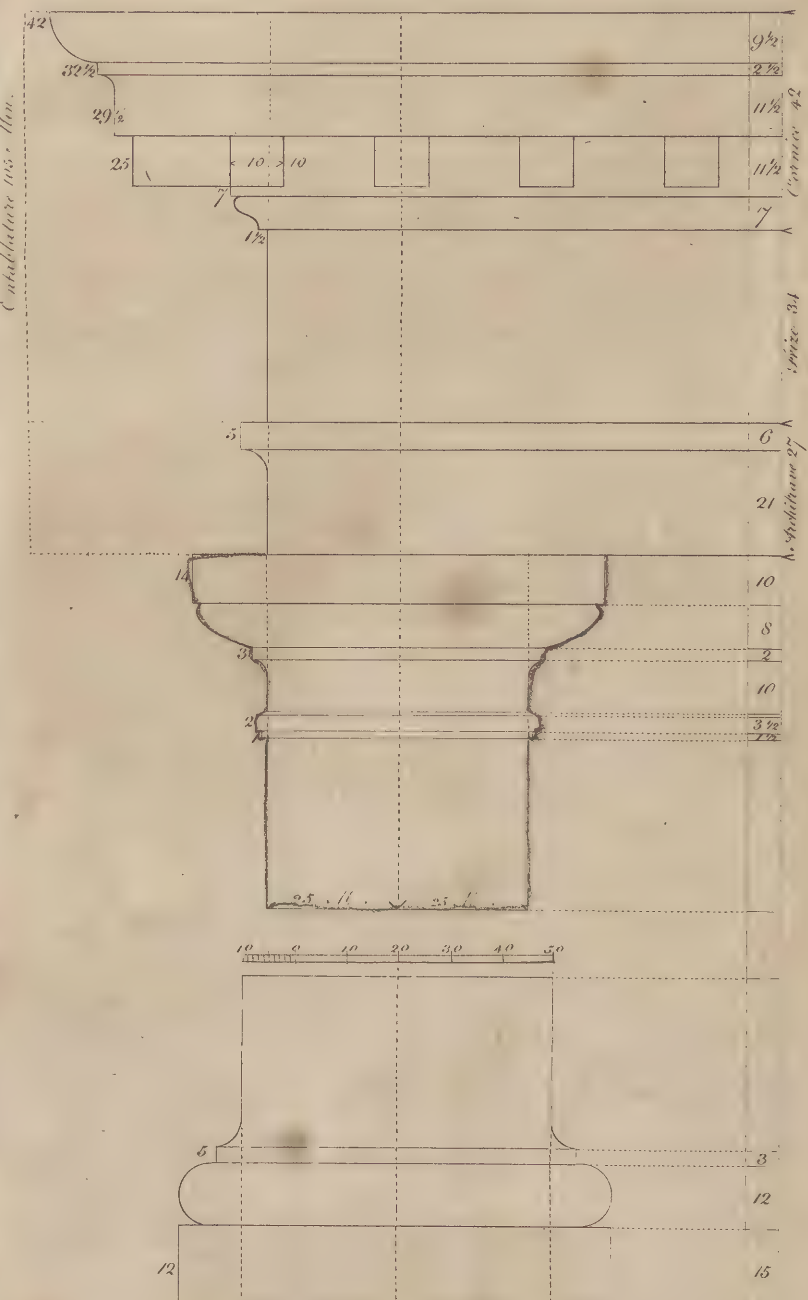
Ex. 3.



P. Nicholson, Delin. W^m. Lowry. Sculp^t.

Published as the Act directs by P. Nicholson, Oct^r. 1^st. 1794.

Tuscan Order



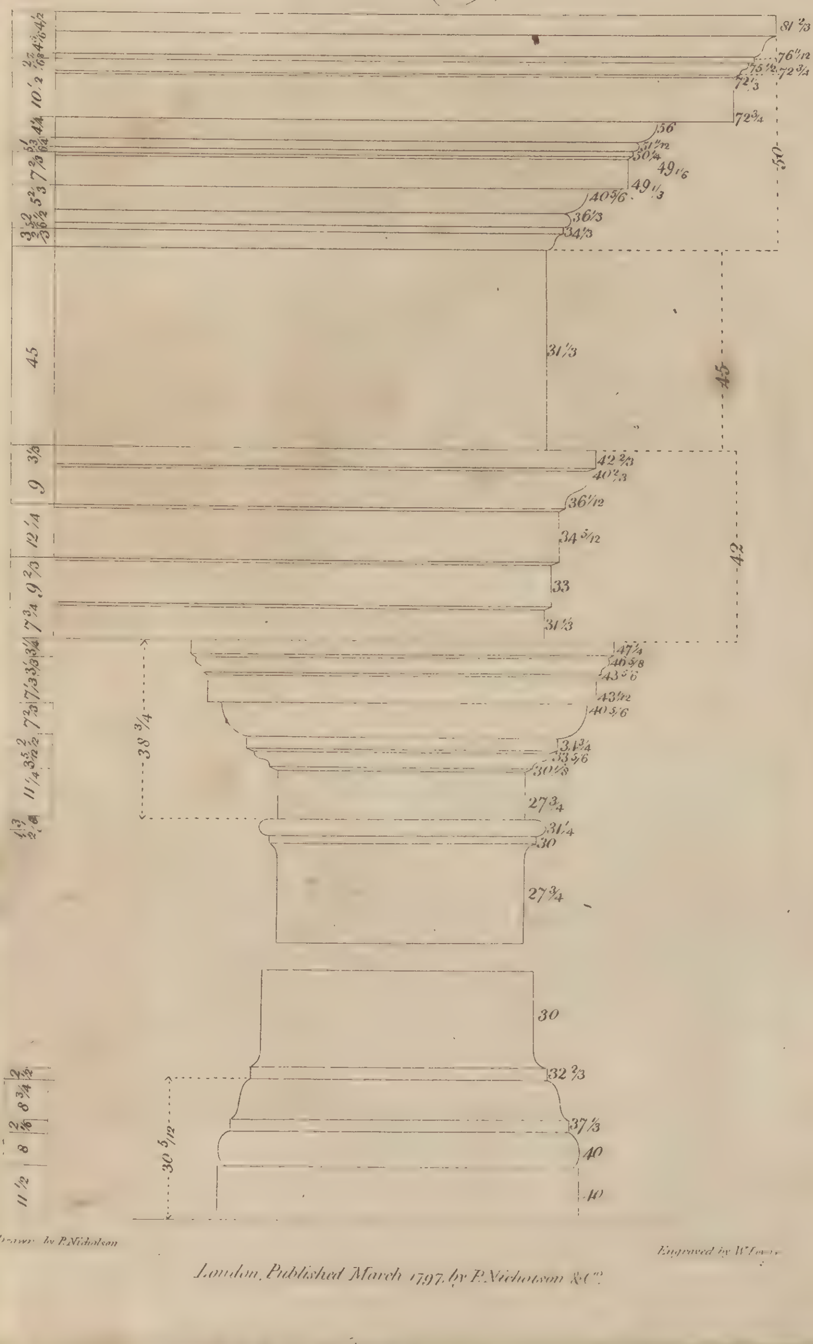
London Published as the Act directs by P. Nicholson Feb. 1. 05

TUSCAN ENTABLATURE AT LARGE

P. Nicholson Delin W^m. Lowry Sculp^t

Published as the Act directs by P. Nicholson Oct^r 1. 1794

ROMAN ARCHITECTURE
From the Colosseum.



Drawn by P. Nicholson

Engraved by W. Lowry

London, Published March 1797, by P. Nicholson & Co.

astragal and fillet, were put annulets, and a plain echinus instead of the eggs and anchors, it would then have a complete Doric Capital.

Palladio, who says he saw some antient remains of this Order in Italy, has given an example which he has copied from these fragments: but so different from that described by Vitruvius, that it is not the Tuscan Order, but rather a fancied Order.

Moderns are too apt to class every example of columns that they find in antient buildings, as belonging to some of the Five Orders, although as different from any of them, as any two of the Five Orders are different from each other.

The following designs taken from the drawings of Palladio, Scamozzi, and other modern authors, are a sufficient proof.

Plate 195.

A modern example of the Tuscan Order.

Plate 196.

Outline, with the measures.

Plate 197.

Another design of a Tuscan entablature.

Plate 198.

From the Coliseum at Rome.

This example cannot be classed among any of the Five Orders, as it differs from them all.

THE

THE

COMPOSITE ORDER.

This Order is evidently derived from the Ionic and Corinthian Orders; it was first used by the Romans in their triumphal arches, to show their dominion over the people whom they conquered. Of this Order we have many antient examples; but the following is the most celebrated: it is taken from the Arch of Titus, which was executed soon after the destruction of Jerusalem, in order to commemorate that remarkable event.

EXAMPLE. Plate 199.

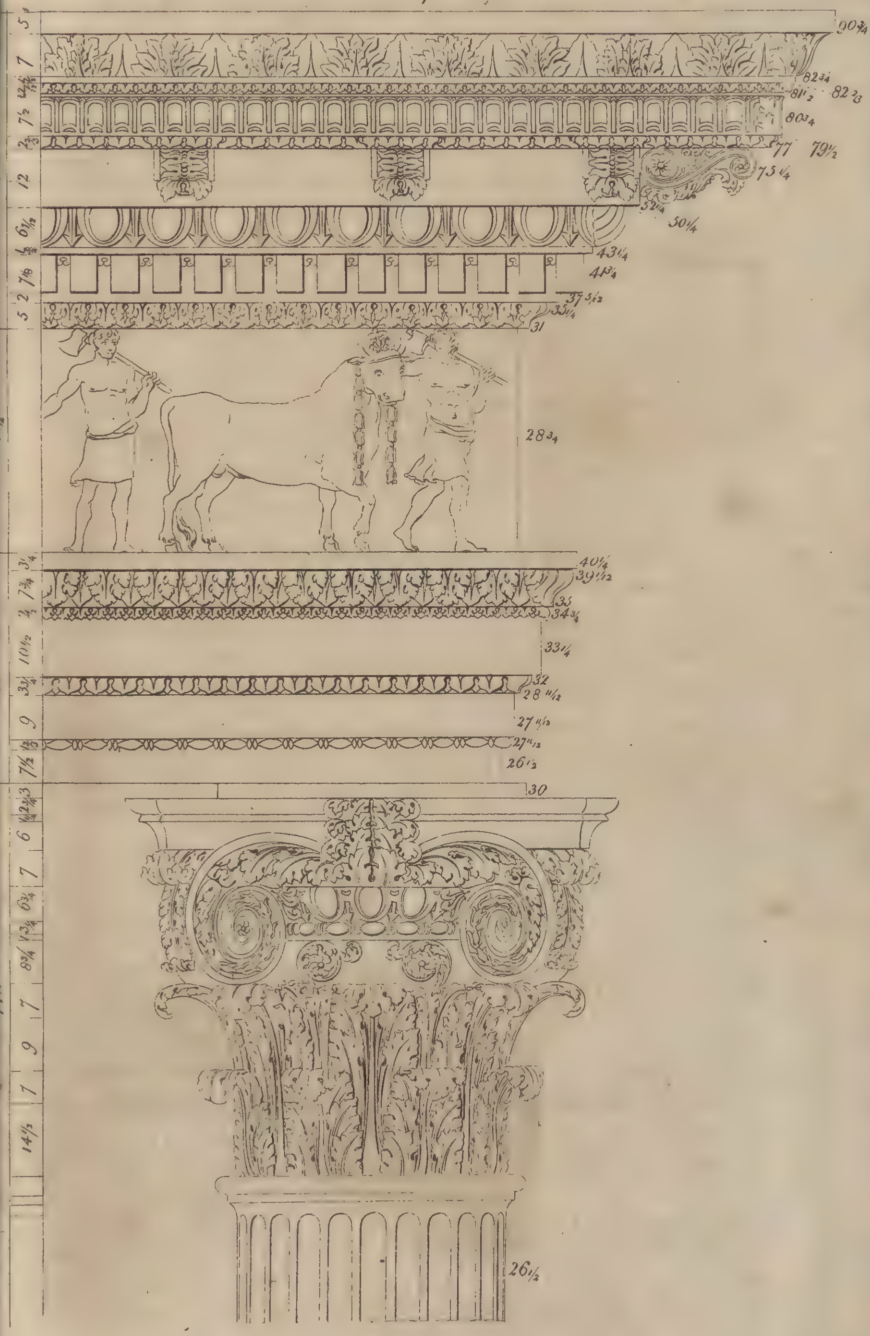
From the Arch of Titus, at Rome.

This most beautiful and elegant example I have made choice of, as the most proper model for this Order.

EX-

ROMAN ARCHITECTURE

From the Arch of Titus at Rome.



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Engraved by [illegible]

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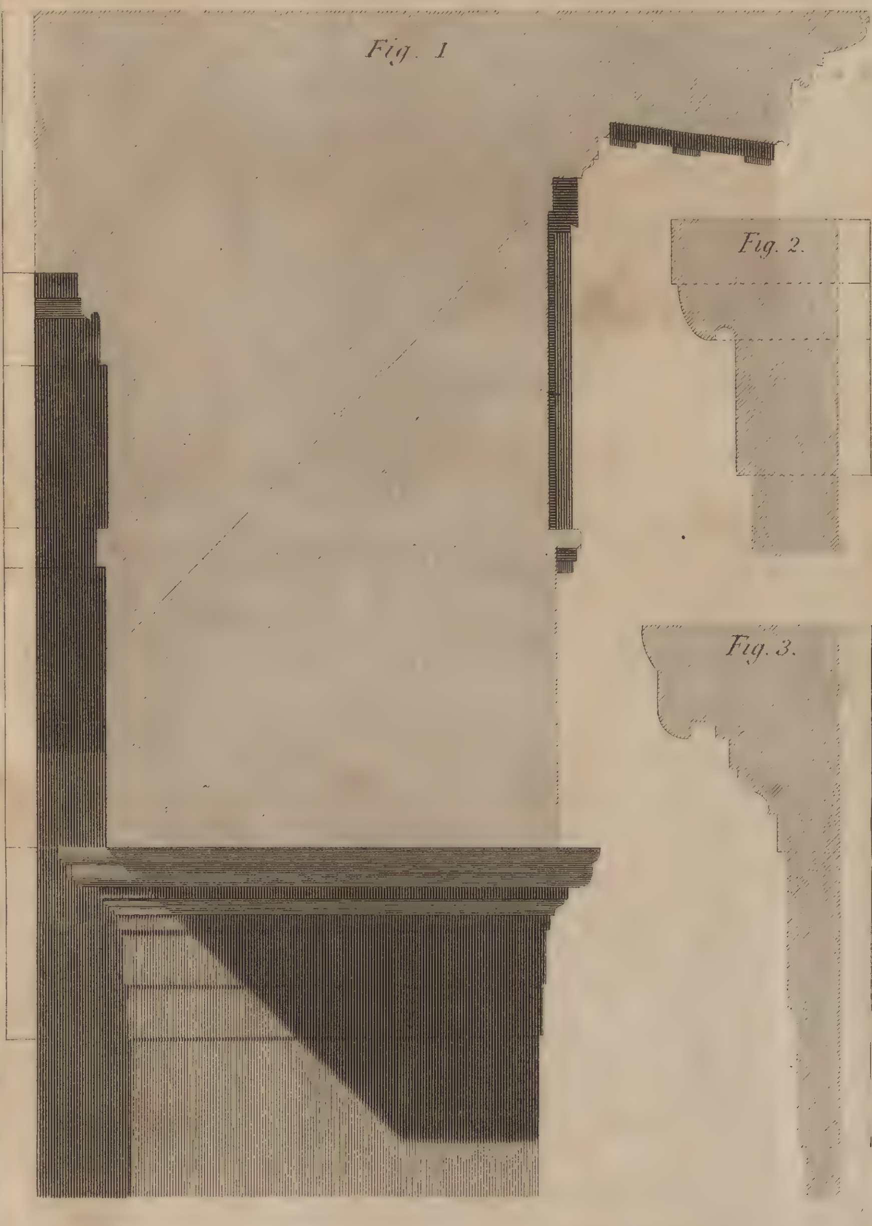
GRECIAN ARCHITECTURE

From the Doric Portico at Athens.



Drawn by P. Nicholson.

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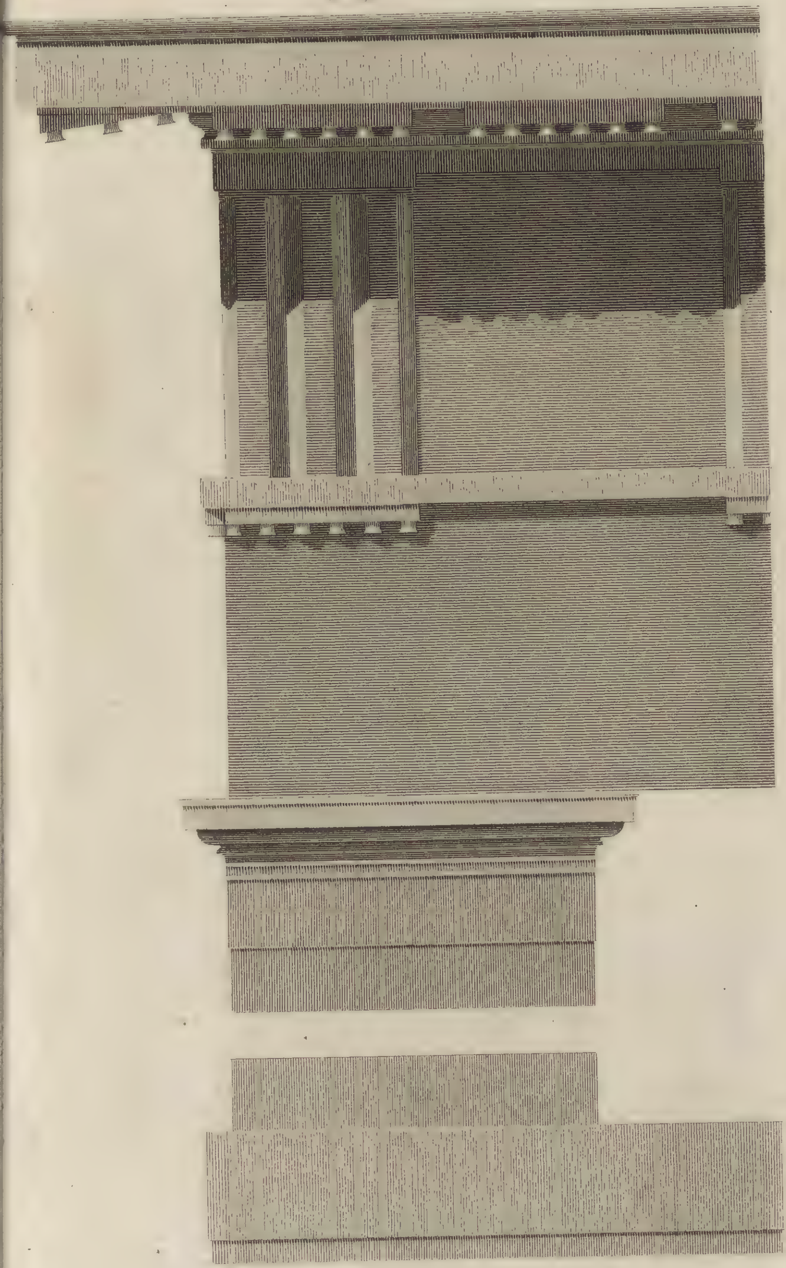
91.

GRECIAN ARCHITECTURE

From the Propylea at Athens.

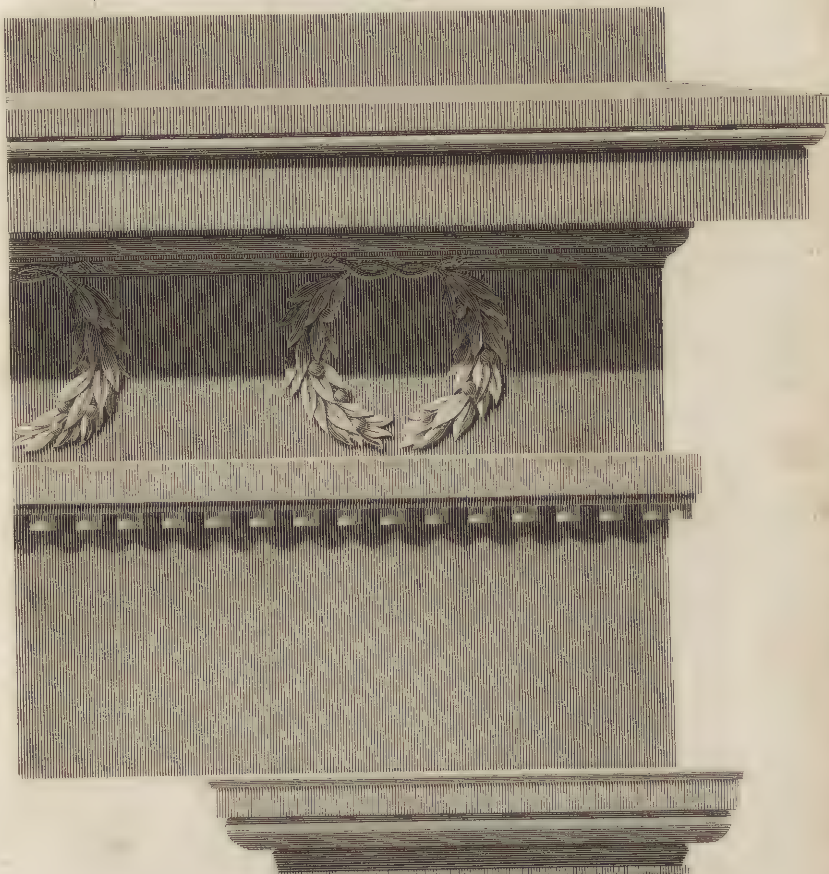


...wn by P. Nicholson. *Engraved by Roffi.*

London, Published by P. Nicholson & C° Ap. 1st 1797.

GRECIAN ARCHITECTURE

From the Choragic Monument of Thrasyllus.



Drawn by P. Nicholson. Engraved by W. Lowry.

London, Published Nov.r 1. 1796, by P. Nicholson & C.o

EXAMPLES OF ANTÆ.

This is a species of square columns attached to a wall or building, either standing in a line with the columns or behind them. In Greek Architecture, the capitals of the antæ differ from those of the columns; but in the Roman they are the same.

The following examples, which are taken from Grecian buildings, will show how they differ from the columns of the same building.

EXAMPLE I. Plate 200.

From the Doric Portico, at Athens.

Fig. 1. Section through the entablature, showing the capital of the antæ.

Fig. 2. Section of the upper moulding of the entablature, within the portico next to the ceiling.

Fig. 3. Section through the capital of the antæ.

EXAMPLE II. Plate 201.

From the Propylea, at Athens.

EXAMPLE III. Plate 202.

From the Choragic Monument of Thrasyllus.

PLATE 203.

Fig. 1. The proportional measures in numbers.

Fig. 2. Section through the cornice.

Fig. 3. Section through the capital.

PROBLEM I.

To draw the flutes of the Doric Order.

PLATE 204. FIG. 1.

Divide the semicircumference into ten equal parts: then with one of those parts, as a radius, and the extremities of any division, as at 3, and 4, describe arcs, cutting each other in C, and through C describe a circle, or a part, and draw lines from the centre, cutting that circle which will give the centres for describing the flutes.

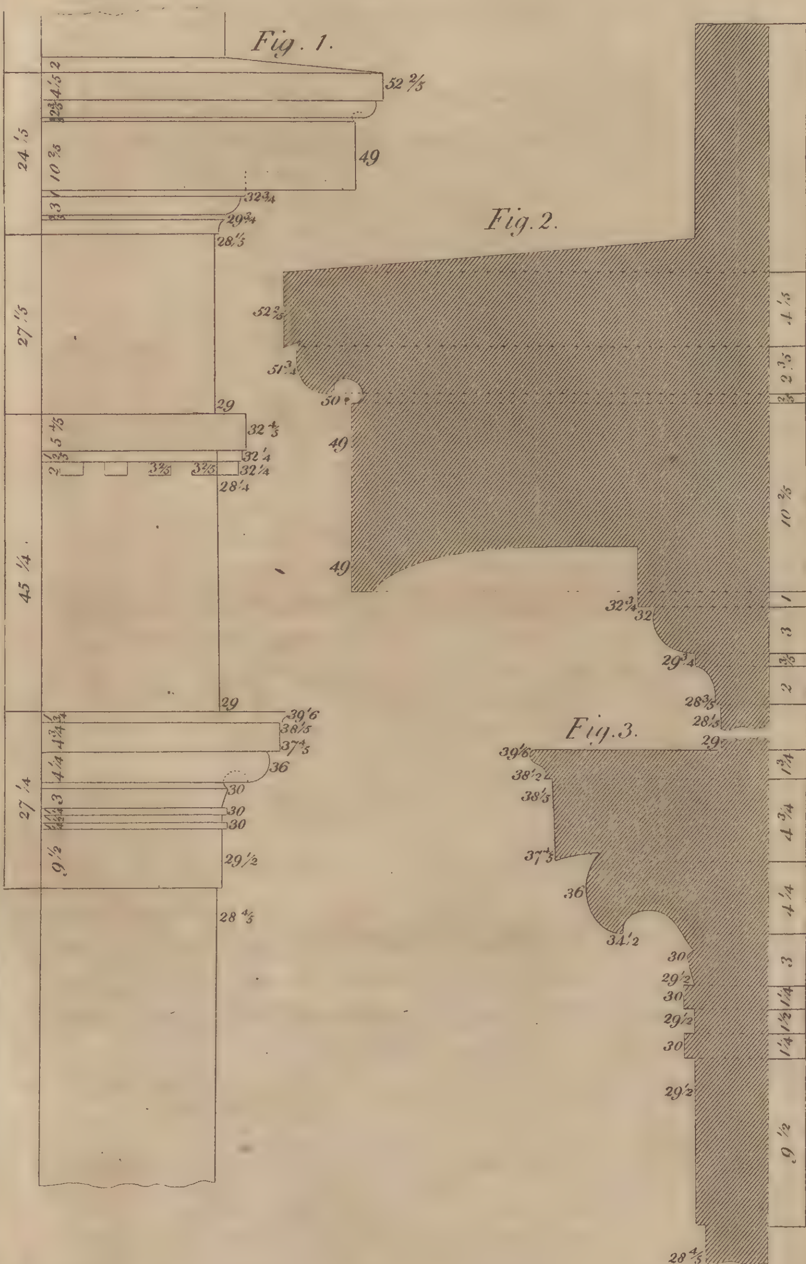
Or thus, for deeper flutes.

Bisect any division as 5, 6, at *f*; then on 5, with the distance 5 *f*, describe an arc *f* D, cutting the radius produced through 5 at D; on the centre describe a circle through D, and draw the radii through the points, 5, 6, 7, 8, 9, 10, cutting that circle which will give the centres of the flutes.

Fig. 2. The elevation drawn from the plan.

PROB-

GRECIAN ARCHITECTURE



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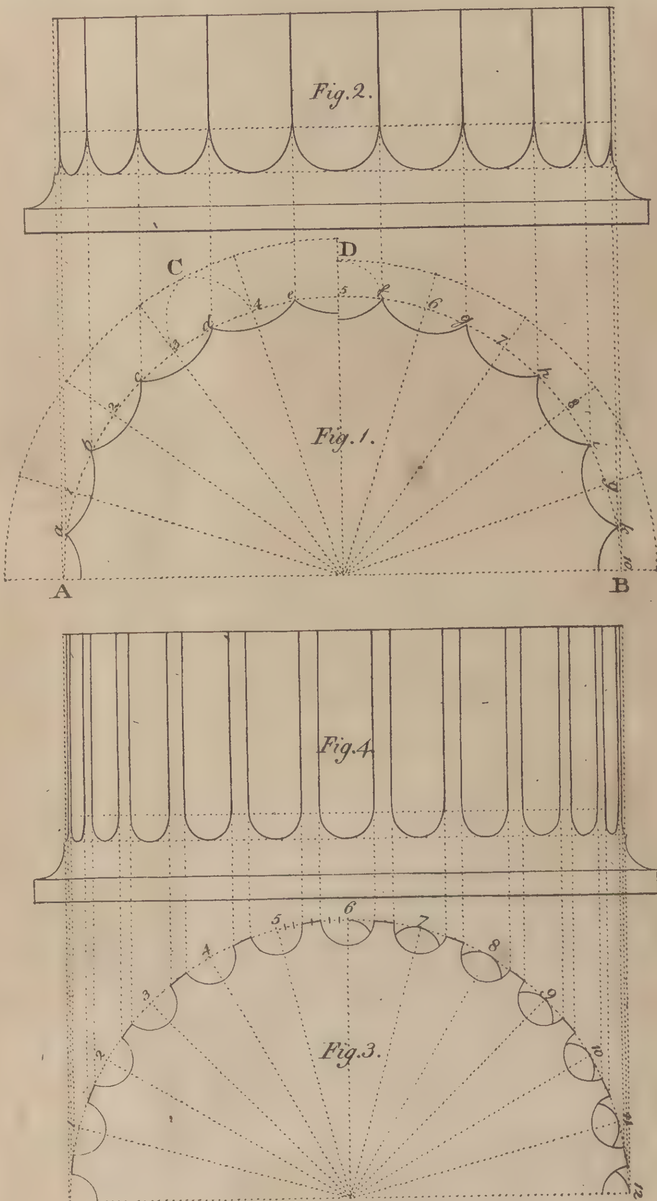
TO DRAW THE FLUTES OF COLUMNS.



PROBLEM II.

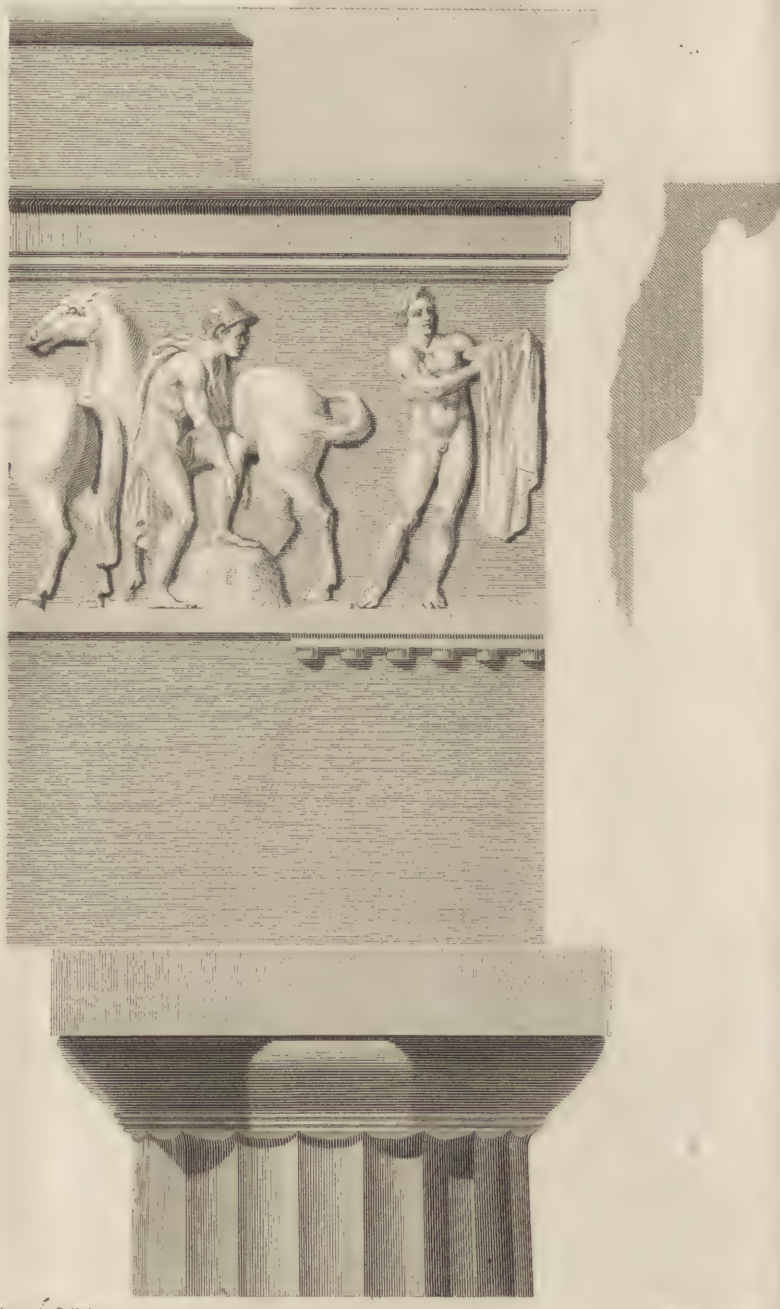
To draw the flutes of the Ionic and Corinthian Orders.

Fig. 3. Divide the semicircumference into twelve equal parts; divide any division as between 5, and 6, into eight equal parts, then with a radius of three of these parts, on the points 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, as centres, describe the flutes which will leave the fillets.

Fig. 4. The elevation, drawn from the plan fig. 3.

GRECIAN ARCHITECTURE

From the Temple of Minerva at Athens



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GRECIAN ARCHITECTURE

From the Ionic Temple on the Ilissus at Athens

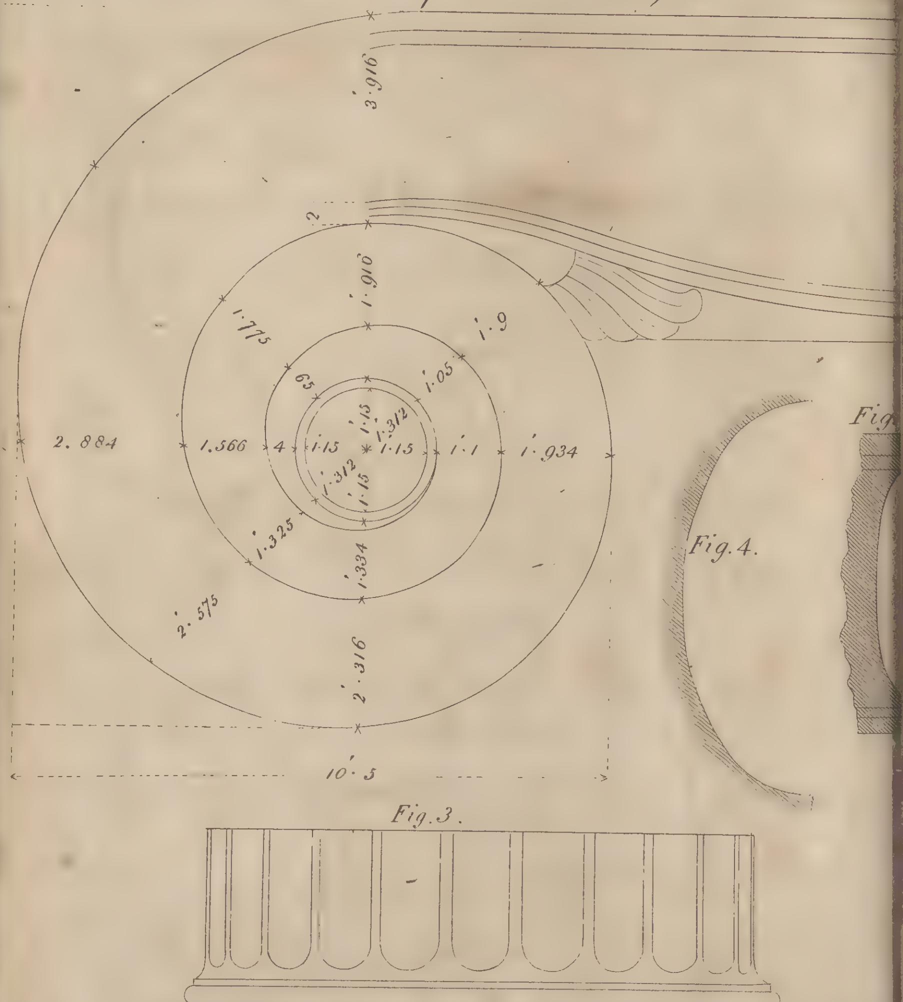
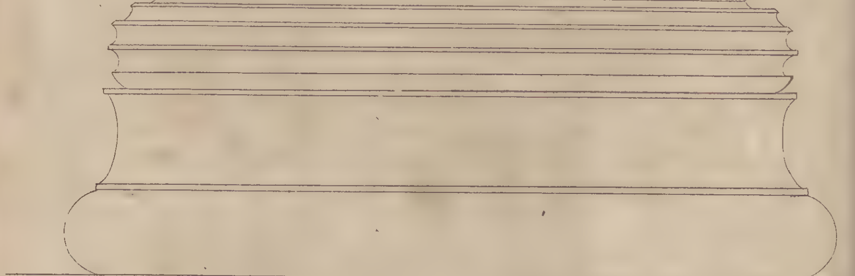


Fig. 3.



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APPENDIX.

PLATE 205.

From the Inside of the Portico of the Temple of Minerva, at Athens.

PLATE 206.

From the Ionic Temple on the River Ilissus, at Athens.

Fig. 1. Volute of the capital, with the measures in feet, inches, tenths, hundredths,* &c.

Fig. 2. A section through *a b*, fig. 1.

Fig. 3. Base of the columns, with a small part of the step.

Fig. 4. Section of a flute.

PLATE

* Feet are marked thus, 5° signifies five feet. Inches thus 3′ signifies three inches; and the decimal parts with a point before them in the usual manner.

PLATE 207.

Fig. 1. Plan of the angular capital.

Fig. 2. Side of the angular capital.

PLATE 208.

From the Temple of Erechtheus, at Athens.

Fig. 1. Capital of the column.

Fig. 2. Base of the column.

PLATE 209.

From the Temple of Erechtheus, at Athens.

Entablature showing the horizontal part of the cornice over the pediment.

PLATE 210.

From the Temple of Erechtheus, at Athens.

Fig. 1. Capital of the antæ.

Fig. 2. Base of the antæ.

PLATE 211.

From the Temple of Erechtheus, at Athens.

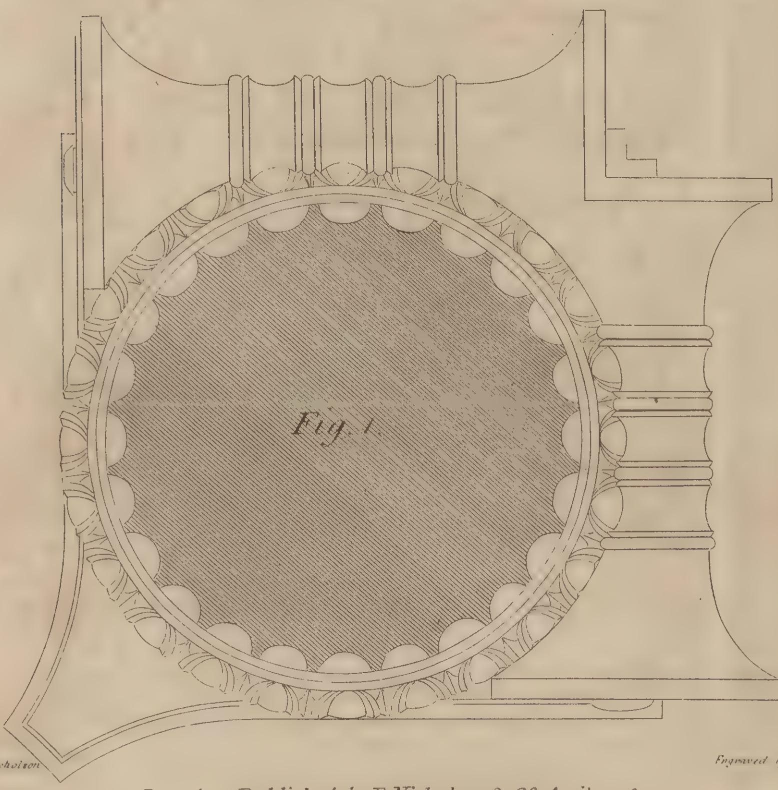
Fig. 1. Volute of the capital, with the measures in feet, inches, and tenths.

Fig. 2. A section through *a b*.

GRECIAN ARCHITECTURE

From the Ionic Temple on the river Ilisus.

Fig. 2.



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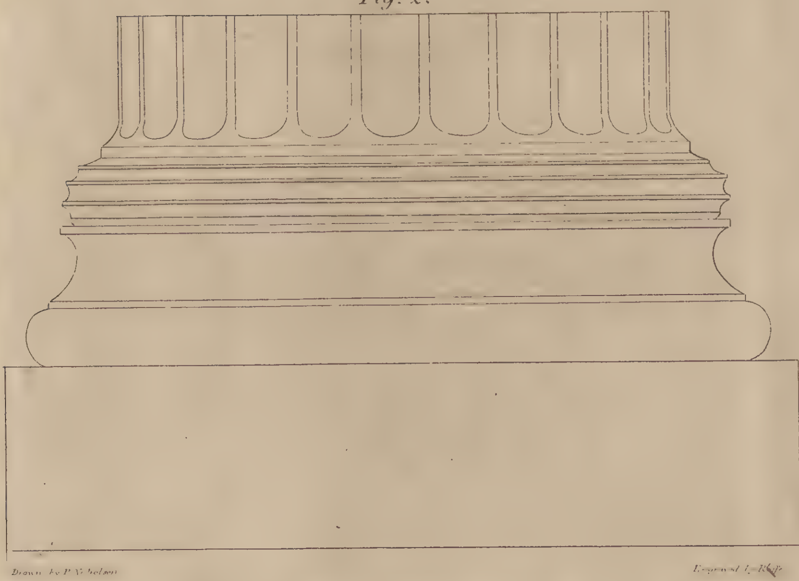
GRECIAN ARCHITECTURE

From the Temple of Erechtheus at Athens

Fig. 1.

Fig. 2.



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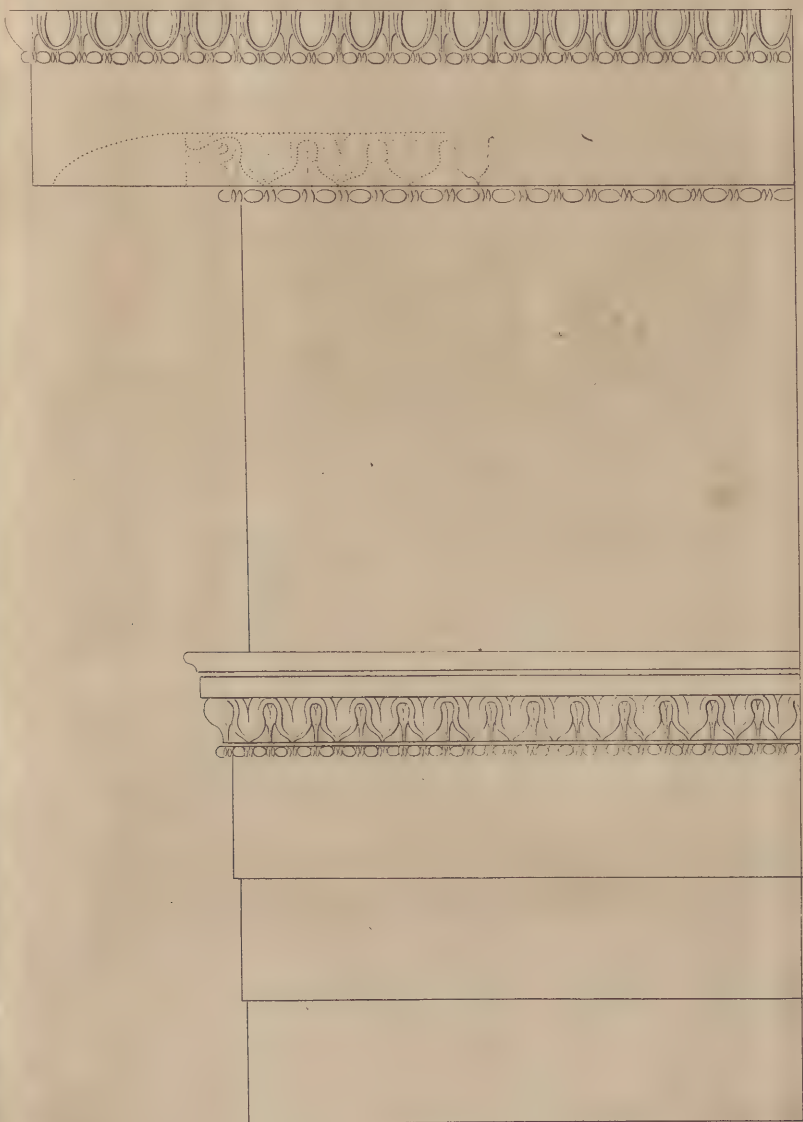
GRECIAN ARCHITECTURE

From the Temple of Erechtheus at Athens.



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GRECIAN ARCHITECTURE.

From the Temple of Erechtheus at Athens.

Fig. 1.

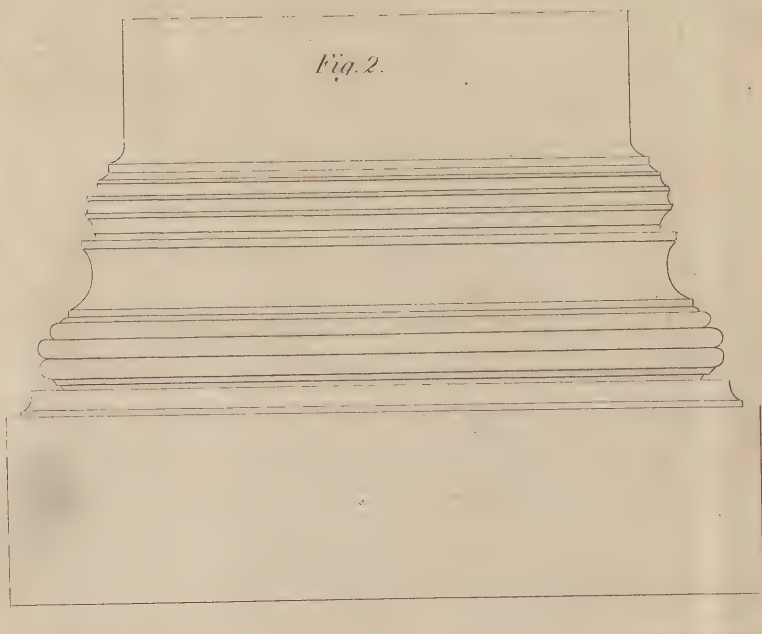

Fig. 2.

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GRECIAN ARCHITECTURE.

From the Temple of Erechtheus at Athens.

Fig. 1.

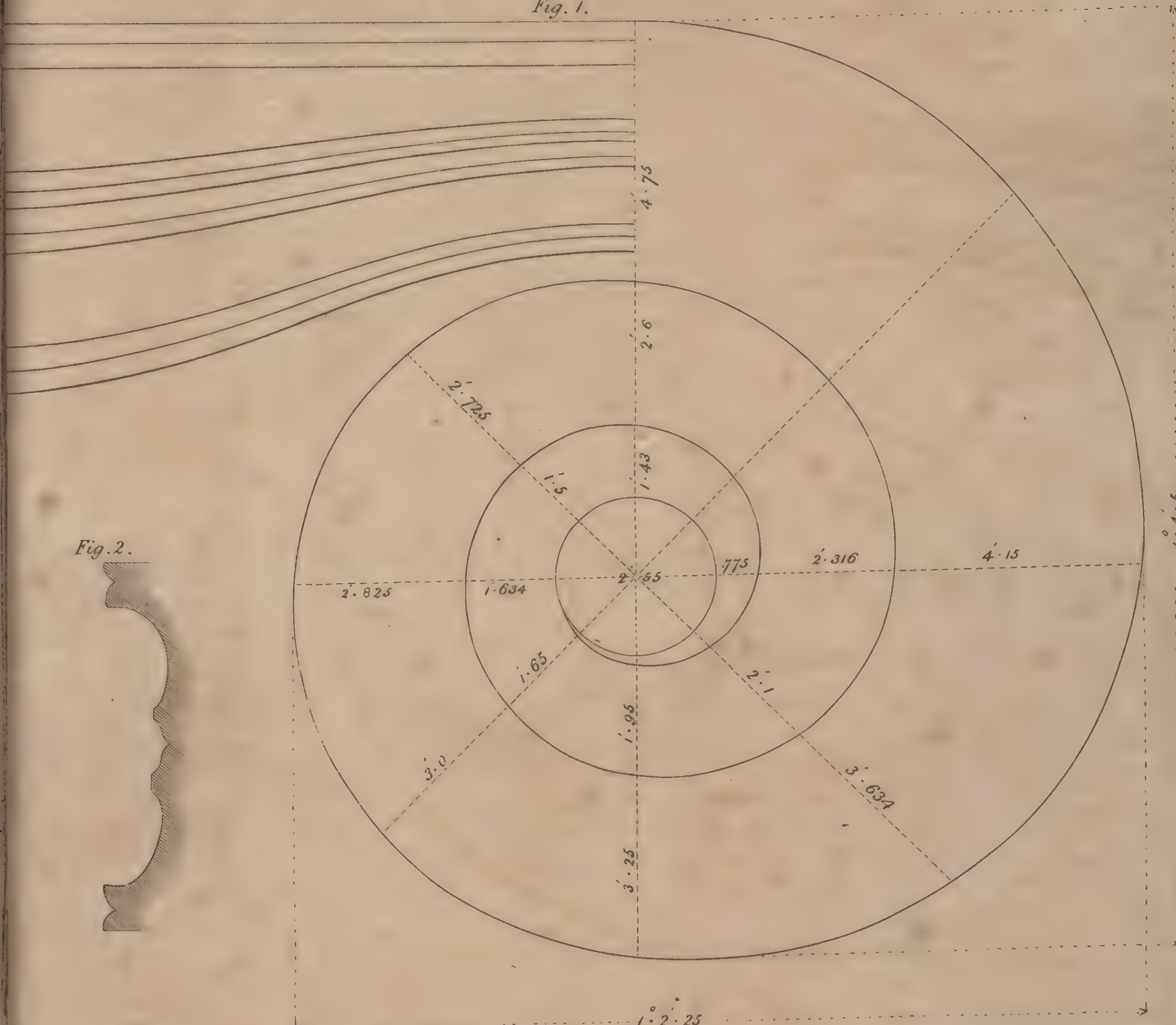

Fig. 2.

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GRECIAN ARCHITECTURE

From the Temple of Minerva Polias at Athens

Fig. 1.

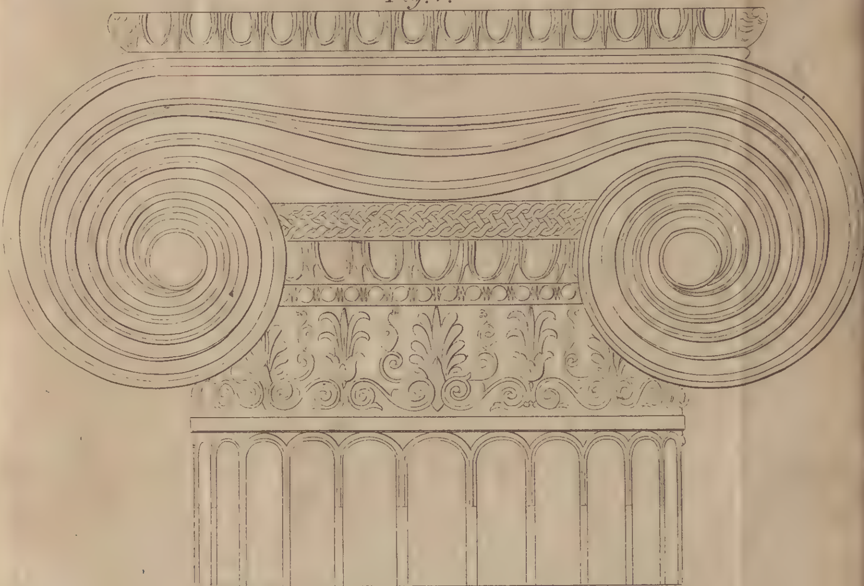

Fig. 2.

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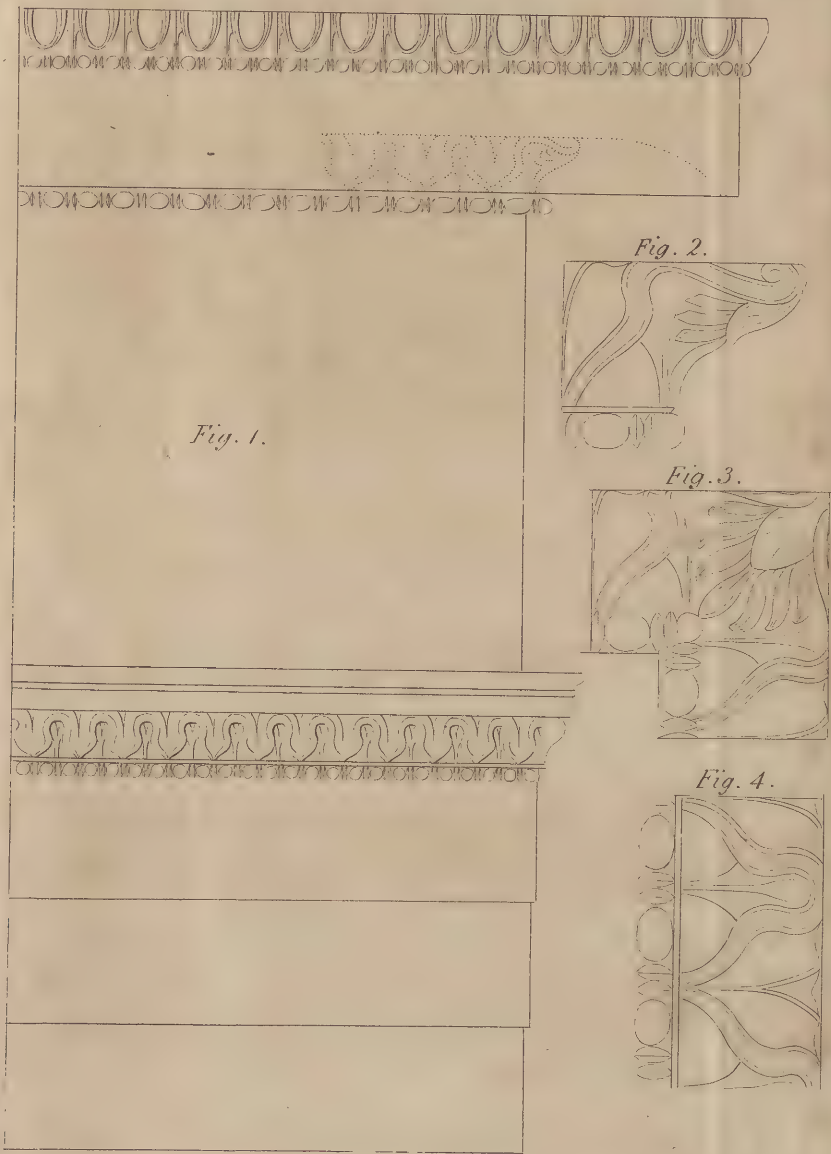
GRECIAN ARCHITECTURE.

From the Temple of Minerva Polias at Athens.



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GRECIAN ARCHITECTURE.

From the Temple of Minerva Polias at Athens.

Fig. 1.

Fig. 2.

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Plate 212.

From the Temple of Minerva Polias, at Athens.

Fig. 1. Capital of the column.

Fig. 2. Base of the column.

Plate 213.

From the Temple of Minerva Polias, at Athens.

Fig. 1. Entablature over the pediment, showing the level part of the cornice.

Fig. 2. Moulding under the corona, showing the taste of the ornament and profile.

Fig. 3. Ichnography inverted, showing the flower at the angle.

Fig. 4. A further continuation of fig. 2.

Plate 214.

From the Temple of Minerva Polias, at Athens.

Fig. 1. Capital of the antæ.

Fig. 2. Base of the antæ.

PLATE 215.

From the Temple of Minerva Polias, at Athens.

Fig. 1. Volute of the capital.

Fig. 2. Section through *a b*.

PLATE 216.

From the Temple of Minerva Polias, at Athens.

Fig. 1. Ichnography of the capital of the column

Fig. 2. Side of the capital of the column.

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GRECIAN ARCHITECTURE.

From the Temple of Minerva Polias at Athens.

Fig. 1.

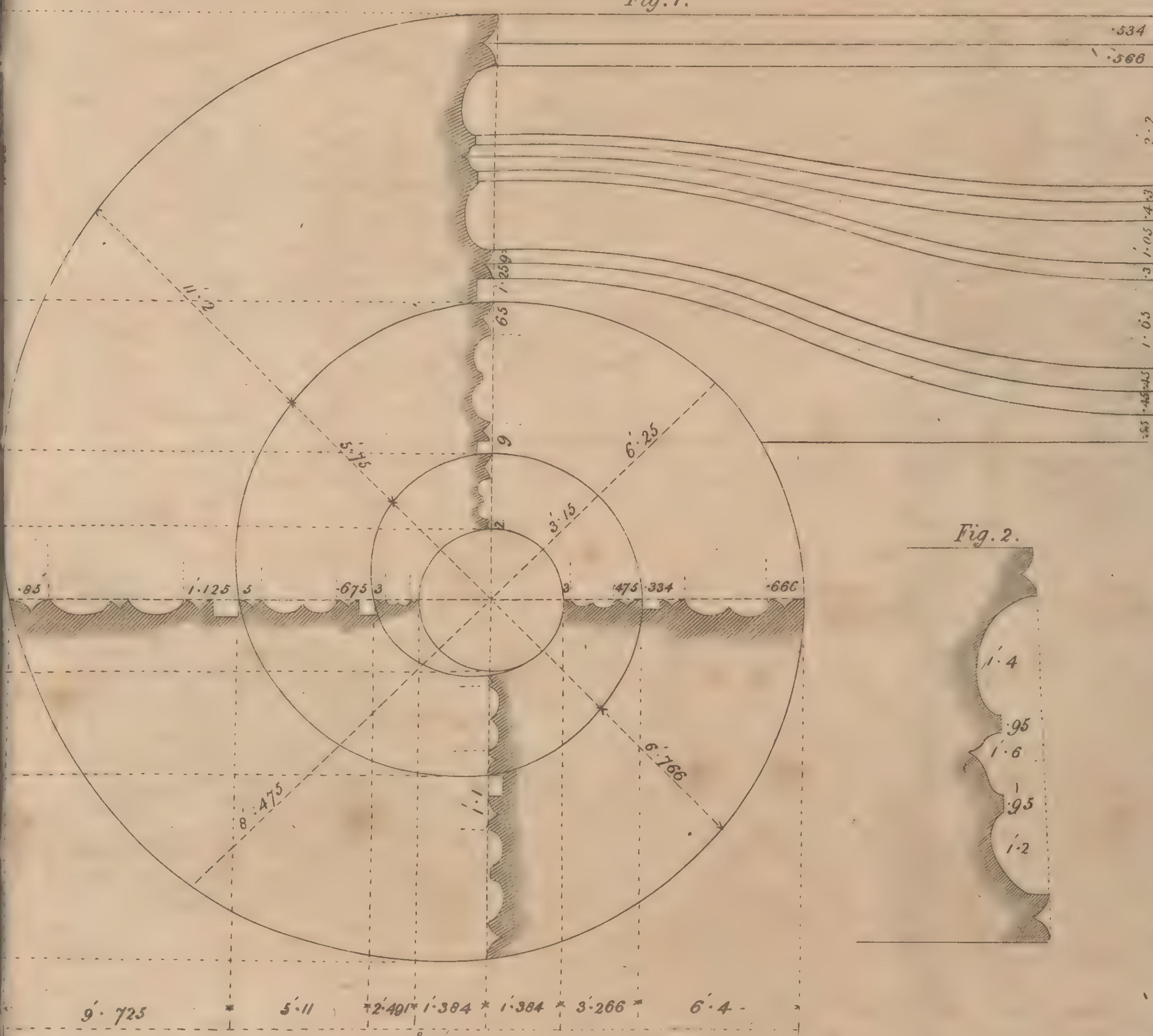

Fig. 2.

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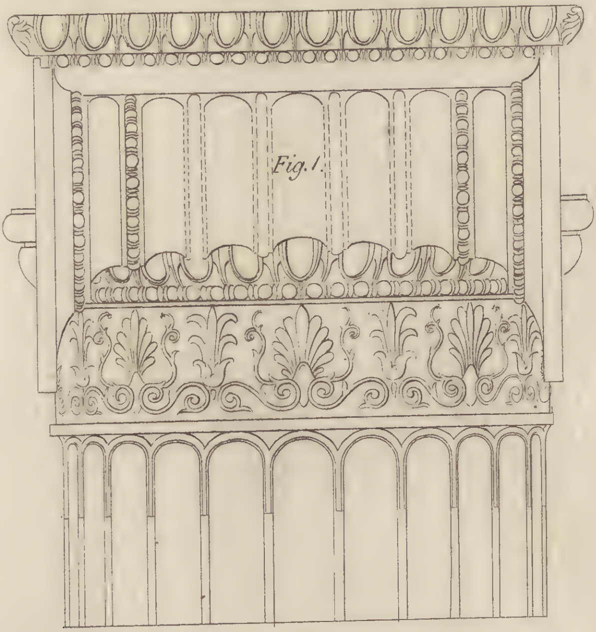
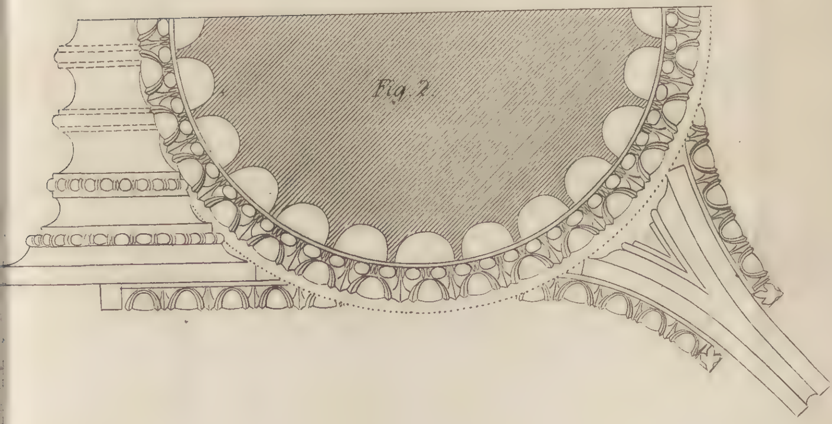
GRECIAN ARCHITECTURE.

[Fr]om the Temple of Minerva Polias at Athens.





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